

Report for the year 1967

Commissioner
of
Public
Health

Western Australia



REPORT of the
Commissioner of Public Health
for the year 1967

Presented to both Houses of Parliament

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The Honourable Graham Charles MacKinnon, M.L.C.,
MINISTER FOR HEALTH



Sir,

I have the honour to submit the Report of the
Department of Public Health for the Year 1967.

WILLIAM SHARP DAVIDSON, M.B., Ch.B., D.P.H.
Commissioner of Public Health.



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ANNUAL REPORT, 1967



VITAL STATISTICS

In 1967, full-blood aboriginals have for the first time been included in the Statistics. Despite this, Infant Mortality Rate has fallen from 19.3 in 1966 to 17.4 in 1967. The lowest Infant Mortality Rate so far achieved in Western Australia. The Rate fell from 16.3 to 13.5 in the Perth Statistical Division and from 24.1 to 23.5 in the rest of the State. The relatively high rest-of-the-State figure is largely influenced by infant deaths in aboriginals and part-aboriginals. The combined Infant Mortality and Stillbirth Rates give a figure of 27.57 which in New Zealand and Australia is only bettered by South Australia with a figure of 27.04. South Australia has relatively few aboriginals. The birth rate rose slightly to 20.55 and the death rate at 7.73 is the lowest recorded in 1967 for New Zealand and Australia. The Maternal Mortality Rate of 0.11 is the lowest recorded for Western Australia and the lowest in Australia in 1967.

1967 has therefore provided us with a set of flattering figures in the Health field of Vital Statistics, despite the entry into those figures of a community at special risk, namely full-blooded aboriginals.

PUBLIC HEALTH LABORATORIES

Dr. Laurie's report again draws attention to the difficulty of working in accommodation inadequate in size and scattered throughout the metropolitan area in a number of widely separated buildings.

The work of the laboratory continues to grow but the size of the staff remains static. This has largely been accomplished by the acquisition of equipment for automation and data processing, all of which will eventually lead up to the eventual computerisation of much of the work of laboratory and hospital. The automated equipment, in addition to providing a rapid and economic method of screening patients, has provided the means of entering into screening surveys of population groups. The Laboratories have played a considerable role in the Busselton Surveys. The value of such surveys and their future role in Preventive Medicine cannot as yet be fully determined. This will become clearer as the results of present surveys and their follow-ups are evaluated.

The reference laboratories in mycobacteria and salmonellae continue with their developmental and research work and of particular interest biologically and epidemiologically is the reference to the prevalence of salmonellae in reptiles.

TUBERCULOSIS CONTROL

The work of this Branch of the Department continues to meet with success in its efforts to reduce the presence of tuberculosis.

In Dr. Edwards's report, both incidence of new cases and deaths from pulmonary tuberculosis show a continuing decline over the years so that the figures for 1967 are the lowest on record. Viz, 15.6 cases notified in 1967 per 100,000 of population and 1.0 deaths per 100,000 population; comparable figures in 1950 were 104.8 and 22.4 respectively.

There were 62,993 persons x-rayed by the Mass X-ray Service and the incidence of pulmonary tuberculosis discovered was 0.19 per 1,000 persons x-rayed. Chest diseases of another nature were brought to light by the x-ray in 280 persons.

A typical disease resistant to the three primary drugs continues to arise, 15 new cases recorded in 1967. It is interesting to note that the drugs Ethionamide and B. 663 used with some success in these atypical mycobacteria are also drugs with which we have had success in treating infections of mycobacteria leprae in the Derby Leprosarium.

EPIDEMIOLOGY AND SPECIAL SERVICES

No case of tetanus, poliomyelitis or diphtheria occurred during the year, indicating a well immunised community.

Bowel infections and infective hepatitis were, however, prevalent suggesting that improvements in the methods of food handling are required at all levels, i.e. in factory, in the shop and in the home.

Sabin oral vaccine was introduced during 1967 to replace the Salk injection. It proved a popular method of vaccination and 379,550 doses were given between 1st June and 31st December.

Trachoma control field work continues and 371 cases were treated representing an incidence of 32 per cent, a slight decrease from the 36.2 per cent of the previous year.

Of the notifiable infectious diseases, infantile diarrhoea remains the major killing disease. In 1967, there were 34 deaths from infantile diarrhoea as against only 10 deaths from pulmonary tuberculosis.

CHILD HEALTH

In his report Dr. Edmonds gives considerable attention to the health of the native child. His investigations into cause of death etc., verify the statement made in the 1964 Annual Report, that the higher incidence of infant deaths in the country as compared to the metropolitan area is not a matter associated with a difference in medical care, but is almost entirely due to the larger proportion of aboriginal and part-aboriginal children in country areas.

Education of the native is the only means of reducing this mortality and this education is a long, slow business. It does, however, work if persisted in, but it needs the tenacity and inspiration of such people as the Nursing Sisters working among natives in the Kimberleys and in Allawah Grove to prove that by a system of long persistent training of native mothers and children and a patient understanding of their problems encouraging results do ultimately appear.

OCCUPATIONAL HEALTH

For the past 20 years, this Department has issued repeated warnings about Blue Asbestos dust and the hazards associated with Blue Asbestos Mining. The sincerity of these warnings have not always been properly appreciated and the consequences are shown by the figures in Dr. Letham's report. The Pneumoconiosis Medical Board awarded compensation claims for asbestosis to 8 miners in 1965, 20 in 1966 and 31 in 1967. The 1967 asbestosis claims awarded were 13.3 per cent of the total successful pneumoconiosis claims. This number and percentage will almost certainly increase in the forthcoming years even though the mine is no longer in operation. Dr. Letham expresses a doubt that safe mining of Blue Asbestos can ever be an economic possibility.

Another hazard of considerable importance in the pneumoconiosis field is the operation of mobile sandblasting units. It appears that these units escape from the requirements of the Factories Act and many operate under circumstances dangerous

both to operatives and to the surrounding population. Where possible, control of this is being pursued under the Clean Air Act.

A variety of occupational hazards and the activity of the Occupational Health Division in combating them is contained in Dr. Letham's report.

HOSPITAL MORBIDITY STATISTICS

Tables show little change from previous years.

Number of patients discharged in the Metropolitan hospitals increased from 40,138 in 1966 to 40,701 in 1967. The number of bed days in hospitals decreased from 524,980 to 522,578. This was brought about by a decrease in the average length of stay in hospital from 13.08 days to 12.84 days.

Accident cases increased the bed occupancy from 16.94 per cent of total beds in the metropolitan teaching hospitals in 1966 to 17.92 per cent in 1967. This was almost entirely due to increase in motor vehicle traffic accidents.

Derby Hospital, the only country hospital supplying statistics, has these statistics separated into white patients and aboriginal patients to show the difference in the incidence in disease and length of stay in hospital between the two races.

The above draws attention to some of the major items in the Report but numerous other important activities of the Department are dealt with in the Appendixes.

LEGISLATION 1967

In the 1967 Session, Parliament passed the following amending Acts.

Child Welfare Act Amendment Act (No. 27)

This Act is administered by the Child Welfare Department. A noteworthy amendment was the addition of strong powers requiring the licensing of child minding centres, and providing for regulations to prescribe standards of care, catering, staff and facilities and for inspection.

Chiropodists Act Amendment Act (No. 65)

A right of appeal to a Magistrate was granted where the Board refused an application for registration of a chiropodist.

Clean Air Act Amendment Act (No. 10)

The State Mining Engineer was added to the membership of the Air Pollution Control Council, and an Inspector of Mines to the Scientific Advisory Committee.

Cremation Act Amendment Act (No. 35)

It is no longer required that the permission of the Commissioner of Public Health be obtained before ashes may be removed from a crematorium.

Dentists Act Amendment Act (No. 11)

Provision was made to extend recognition to Canadian and United States qualifications for registration purposes.

Physiotherapists Act Amendment Act (No. 8)

Persons with foreign qualifications not previously recognised are now permitted to teach, undertake research or post graduate study.

Poisons Act Amendment Act (No. 28)

The Act was amended to permit pesticides to be regulated under a set of regulations other than the Poisons Regulations.

W. S. DAVIDSON,
Commission of Public Health.

Appendix I

VITAL STATISTICS FOR WESTERN AUSTRALIA

| | | | | | | | | | | 1964 | 1965 | 1966 | 1967 (b) |
|--|------|------|------|------|------|------|---------|------|------|--------|--------|--------|----------|
| Mean Population | .... | .... | .... | .... | .... | .... | Males | .... | .... | (a) | (a) | (a) | 446,945 |
| | | | | | | | Females | .... | .... | (a) | (a) | (a) | 430,052 |
| Births | .... | .... | .... | .... | .... | .... | Males | .... | .... | 8,570 | 8,280 | 8,800 | 9,322 |
| | | | | | | | Females | .... | .... | 8,115 | 7,906 | 8,207 | 8,701 |
| Total | .... | .... | .... | .... | .... | .... | .... | .... | .... | 16,685 | 16,186 | 17,007 | 18,023 |
| Birth rate per 1,000 of Mean Population | .... | .... | .... | .... | .... | .... | .... | .... | .... | 20.93 | 19.85 | 20.31 | 20.55 |
| Deaths | .... | .... | .... | .... | .... | .... | Males | .... | .... | 3,738 | 3,715 | 3,921 | 3,956 |
| | | | | | | | Females | .... | .... | 2,691 | 2,559 | 2,851 | 2,823 |
| Total | .... | .... | .... | .... | .... | .... | .... | .... | .... | 6,429 | 6,274 | 6,772 | 6,779 |
| Death rate per 1,000 of Mean Population | .... | .... | .... | .... | .... | .... | .... | .... | .... | 8.06 | 7.70 | 8.09 | 7.73 |
| Natural increase rate per 1,000 of Mean Population | .... | .... | .... | .... | .... | .... | .... | .... | .... | 12.86 | 12.16 | 12.22 | 12.82 |
| Infant Mortality per 1,000 Live Births— | | | | | | | | | | | | | |
| Perth Statistical Division | .... | .... | .... | .... | .... | .... | .... | .... | .... | 16.0 | 17.1 | 16.3 | 13.5 |
| Rest of State | .... | .... | .... | .... | .... | .... | .... | .... | .... | 25.2 | 29.0 | 24.1 | 23.5 |
| Whole of State | .... | .... | .... | .... | .... | .... | .... | .... | .... | 19.7 | 21.7 | 19.3 | 17.4 |
| Stillbirths— | | | | | | | | | | | | | |
| Perth Statistical Division | .... | .... | .... | .... | .... | .... | .... | .... | .... | 97 | 110 | 113 | 118 |
| Whole of State | .... | .... | .... | .... | .... | .... | .... | .... | .... | 170 | 181 | 168 | 188 |
| Stillbirths rate per 1,000 Total Births | .... | .... | .... | .... | .... | .... | .... | .... | .... | 10.09 | 11.06 | 9.78 | 10.32 |

(a) Not available for publication.

(b) For 1966 and earlier years excludes Full-blood Aborigines. In 1967 Aborigines are included.

Appendix II

Public Health Laboratory Service

Dr. W. Laurie, D.S.O., M.D., T.D.D., M.C.P.A., Director, Public Health Laboratory Services.

I. ADMINISTRATION

General

The responsibilities of this department remain unchanged, i.e. to provide a combined hospital and public health laboratory service which is State-wide and to provide a forensic service for the Police Department.

Accommodation

The accommodation problem has not been solved and, with no indication of planning being started for the larger laboratories, we must increasingly depend on numbers of temporary units which now reach a total of six in addition to accommodation being provided in other parts of the city, such as the Virus Laboratory—4 miles away ; the Microbiology Laboratory—3 miles away, and the Cytology Laboratory—2 miles away. This makes control of the work increasingly difficult, with the demands on the laboratories catching up faster than the new space provided.

Tours and Conferences

Several important meetings were attended during the year.

In January, Dr. E. M. Mackay-Scollay and Miss D. Jenkyn attended the AANZAS/ASM meeting in Melbourne. Miss Jenkyn then attended a Post-Graduate Course on Cell Culture conducted at the University of Melbourne in January-February.

Dr. Mackay-Scollay was in Canberra in April for the Commonwealth Committee Meeting on Laboratory Methods in Tuberculosis and later proceeded to Brisbane, the Solomon Islands and Fiji for World Health Organization meetings on Mycobacteria and Tuberculosis Research.

Dr. D. Hainsworth attended the Conference on Aviation Pathology held in May by the Department of Civil Aviation in Melbourne.

In August, Drs. Mackay-Scollay, V. Blackman and D. W. G. Kennett attended the College of Pathologists' Meeting in Brisbane, where Dr. Mackay-Scollay and Dr. Kennett were accepted as members of the College. Dr. Mackay-Scollay then attended a Committee Meeting on Microbiology Teaching and Dr. Blackman and Dr. Kennett attended the Bone Tumour Seminar at which Dr. Dahlin of the Mayo Clinic was the guest speaker—both meetings having been arranged by the College of Pathologists.

On his return journey Dr. Blackman took the opportunity to visit Laboratories in Sydney, Melbourne and Adelaide.

Dr. Mackay-Scollay made a trip to Sydney in September to attend a meeting of the Standards Association of Australia (Microbiological Examination of Dairy Products).

During the year Mr. A. F. Drummond, our Principal Technologist, was on long service leave overseas. During his leave he visited laboratories in Singapore, Kuala Lumpur, New Delhi, Vienna and Hong Kong.

Working Hours

The hours of work still remain 14 hours a day, 7 days a week, in addition to which staff are on call for emergencies after duty. This arrangement is unsatisfactory, not only does it represent a heavy demand on laboratory staff who sometimes are called up for several hours during the night but also possibly is false economy in the sense that it leads to large overtime bills, whereas a small extra number of staff could probably provide a 24-hour service at a cheaper rate and with less demands on the individual.

Character of Work

There has been no significant change in the pattern of the work except that certain departments have increased their work output compared with others, for example the emphasis now seems to be on biochemistry.

Demands on Individual Laboratories

As is the case with laboratories practically the world over, the work continues to increase although in a patchy fashion, some subsections being more heavily involved than others. Details of this are shown in subsequent sections of the report. Work is being increasingly automated or, rather, the methods of carrying out the work are being increasingly automated, the idea being not only to save the patient being venipunctured on several occasions but also to cut down the cost of individual units by the use of screening methods although the cost of this is still to be worked out.

Laboratory Costs

With the increasing demand on each laboratory section and with ready use of automation the laboratory costs for individual units of work continue to fall in spite of the increasing costs otherwise.

II. STAFF

1. *Changes* (including Branch Laboratories)

| Position | Recruited | Resigned |
|------------------------------|-----------|----------|
| Assistant Virologist | 1 | .... |
| Technologists | 8 | 7 |
| Laboratory Assistants | 1 | .... |
| Cadet Technologists | 6 | 1 |
| Laboratory Attendants | 62 | 59 |
| Animal House Attendants | 3 | 3 |
| Clerks | 5 | 4 |
| Typists | 3 | 2 |
| Storemen | 4 | 2 |

The above table shows staff changes for 1967. As is seen, with the exception of cadet technologists recruited for the new 3-year training course, there is no significant increase in staff in spite of the quite substantial increase in work. This has thrown added strain on the staff although automation to some extent has relieved the problem. The position is further worsened by the very large turnover of staff especially among laboratory attendants, in which there was almost a 50 per cent turnover, and since these people are responsible for certain fragmented laboratory investigations the continued training of new individuals is an extra demand on the trained staff.

2. *Sickness*

The staff sickness rate decreased to 1.69 per cent of 49,400 man days worked in 1967 : this is a decrease of 10.1 per cent below the figure of 1.88 per cent lost in 1966.

From the breakdown table below it will be seen that the loss was once more disproportionately high among laboratory attendants who, although 49 per cent. of the work force, were responsible for 73 per cent of the time lost : again, within this group a few individuals made up a substantial total of the time lost, with four attendants being responsible for 115 working days lost.

Sickness Analysis—

| | | | | |
|---------------------------|-------|----------------------------------|-------|-----------------------------------|
| Medical staff who make up | 5% | of the work force, accounted for | 0.4% | of the recorded working days lost |
| Senior Technologists | 12.5% | „ „ | 1.3% | „ |
| Technologists | 10% | „ „ | 8% | „ |
| Clerical Staff | 9.5% | „ „ | 9.5% | „ |
| Laboratory Assistants | 7.5% | „ „ | 6.4% | „ |
| Laboratory Attendants | 49% | „ „ | 73.6% | „ |
| Cadet Technologists | 6.5% | „ „ | 0.8% | „ |

3. Training

The world-wide shortage of medical laboratory technologists continues as is to be expected in view of the increasing demands on laboratories the world over. This to some extent may be overcome in Perth in the fairly near future by the introduction of the 3-year training course at the Western Australian Institute of Technology, this course replacing the much longer part-time evening course which until recently was the only method of training. We now have a total of 16 cadets attending this course, some in the first year of training, some in the second year of training. During their long vacation these individuals receive practical work in the laboratory and come into contact with hospital problems during that time. It should be noted that of the four sections of medical laboratory technology in the Western Australian Institute of Laboratory Technology three are under the charge of senior technologists originally from this Department. This is an indication of the high standing in which these men are held and, although a serious loss to us, is possibly an investment. Certain of the technologists who have resigned have done so either to open privately run laboratories or to join privately run laboratories, some of which are not under the charge of pathologists.

III. WORK DONE, 1967

1. General

The series of tables in the Appendix gives detailed information of work done in the various sections of the Central Laboratories and in the Branch Laboratories.

Table 1 (a) gives details of the work done in the different sections of the Central Laboratories. The increase in work in the Central Laboratories in 1967 as compared with 1966 is about 16 per cent., much the same as the increase in 1966 over 1965 and, as was the case in 1966, the increase is greater in certain departments than others, with Biochemistry and Histopathology showing an increase of approximately 48 per cent.

The rise in the country work is much less, being only 2.2 per cent. due to substantial falls in two of the large country laboratories.

A new laboratory was opened at Broome in 1967 but so far can only be staffed by a laboratory attendant as no housing is available in Broome for the laboratory technologist authorised for that post. Certain other country centres for which no laboratory services have yet been supplied, for example Quairading, have been provided with a makeshift arrangement whereby railway buses operating through the towns carry refrigerators in which specimens can be forwarded to Perth each day.

The work done by the officers in the branch laboratories again must be commended highly. These officers work very long hours, often seven days a week, and sometimes under extremely uncomfortable conditions.

All branch laboratories have been visited by senior staff during the year, some not as often as is desirable, and with the possibility of increased senior staff this is something which will have to be remedied.

2. Microbiology

The work of this department has been made very difficult by the scattering of laboratories through Perth, which is essential in view of the shortage of space. Much of the time of the Microbiologist-in-Charge is spent in travelling from one laboratory to another, a thoroughly unsatisfactory arrangement.

The volume of the work done during 1967 differed very little from the level attained in the previous year. (See Tables 2 (a) to 2 (h) of the Appendix). As stated administrative difficulties were again encountered due to the fragmentation of the Division exemplified by the continuing existence of four separate and distinct laboratories in the metropolitan area.

During the year plans were prepared for (i) an extension of the existing Animal House on the fifth floor of the Sir Charles Gairdner Hospital : (ii) a separate Media Preparation Unit to be built in Shenton Park, and (iii) a new Animal Breeding Unit. The Animal Breeding Unit was intended to supply laboratory animals firstly for the Public Health Laboratory Service and then, eventually, to enlarge in order to breed animals for all users of laboratory animals in the State. During the year the policy was altered on the score of economy, so that the supply of animals would eventually be taken over by the Animal Health Section of the Department of Agriculture at Jarrah Road, South Perth. This arrangement will require safeguards for the production of laboratory animals as to quantity and quality.

The increasing commitment of the Service for prepared media, both in the country laboratories and in the Sir Charles Gairdner Hospital, required that new accommodation for the preparation of media be found as a matter of urgency. It was envisaged that the Unit would be able to supply bacteriological and virological media, not only for the Service but for any metropolitan hospitals wishing to purchase ready-prepared media.

Clinical Bacteriology

The work in this section is illustrated in Table 2(a). Although the work did not increase overall, there was a rise in examinations of blood and C.S.F. specimens for culture, in the number of sputa examinations and in the sensitivity tests performed on microorganisms isolated. During the year a strain of *Corynebacterium* was isolated on ten separate occasions from the blood of bacterial endocarditis cases. The strain has been submitted to authorities in England but at the time of this report no final diagnosis has been achieved and it seems likely that the strain is a new species entirely.

Enterobacteriaceae Laboratory

The work in this laboratory (see Table 2(c)) was extended into new developmental work on media, designed to facilitate the isolation of *Salmonellae* from both clinical and food materials, and during the year extensive work was undertaken in efforts to trace the origin of *Salmonella*, particularly *Salmonella typhimurium* isolated from small goods.

Three papers are about to be published embracing the work of this section, the first of which deals with the isolation of *Salmonellae* from reptiles, the gravamen of which implicates reptiles as an important reservoir for *Salmonellae* in Australia.

The specific *Salmonella* serotypes isolated during the year have been the subject of a separate publication, which also contained a list of the Arizona strains isolated in the laboratory. It is noteworthy that Arizona strains are assuming greater importance than was previously suspected in Western Australia.

Parasitology

The work in this section is recorded in Table 2(g).

Waters and Sewage

The work of this section is recorded in Table 2(b).

Mycoplasmas

The work of the Mycoplasma Section continued on its main line of activity in relating the isolation of Mycoplasma species to specific lesions. Work in this section includes survey work in the Royal Australian Naval Training Base at the Leeuwin and the survey of volunteer women for cervical cytology undertaken by the University Department of Gynaecology, King Edward Memorial Hospital.

The isolations of Mycoplasma species from clinical material during 1967 is recorded in Table 2(h).

Mycology

The work of the Mycology Section is reported in Table 2(e). The Dermatomycoses comprised once again the bulk of the work performed in this section during the year. It is note-worthy that there was no decrease in these diseases during the cooler winter months. Approximately 50 per cent. of skin specimens yielded positive results on culture.

Various *Candida* spp. were isolated from pus specimens taken from different sites and lesions. Of 340 isolations the most common species was *C. albicans*. *Aspergillus fumigatus* was isolated from the sputum of five patients and *A. terreus* from the sputum of one other patient. There was a single case of Nocardiosis and one of Cryptococcosis, both from the north of the State.

Virology

Although the overall figures suggest a decline in the number of specimens examined, there was an actual increase in work if the figures for the Busselton Survey for the previous year are subtracted. The work of the Section is recorded in Table 2(f) and the main body of effort was directed to the routine diagnosis of virus diseases. No specific epidemic was encountered during the year, but a survey into the virus etiology of croup in patients admitted to the Princess Margaret Hospital was undertaken. This study is continuing.

Despite repeated complaints to the Commonwealth Serum Laboratories the quality of monkey kidney cells for tissue culture again fell far short of the ideal, with repeated contamination of the tissue by Simian viruses.

Another survey proceeding on a continuing basis was the investigation of the spread of viruses in the Royal Australian Naval Training Base at the Leeuwin but no epidemic of disease occurred during the year.

A number of poliovirus isolations were made but these coincided with the use of Sabin vaccine, and the first few strains tested for their origin confirmed them as being vaccine strains.

Mycobacteria

The work of the Mycobacteria Section was re-organised and streamlined during the course of the year in preparation for more extensive work into the classification and pathogenicity of atypical Mycobacteria. An extension to the range of drugs used in sensitivity testing for Mycobacterial strains was also made.

The epidemiological and ecological investigation into human and animal infections by Battey bacilli continued through the year.

Table 2(d) shows the isolations of atypical Mycobacteria during 1967 for comparison purposes with the previous years.

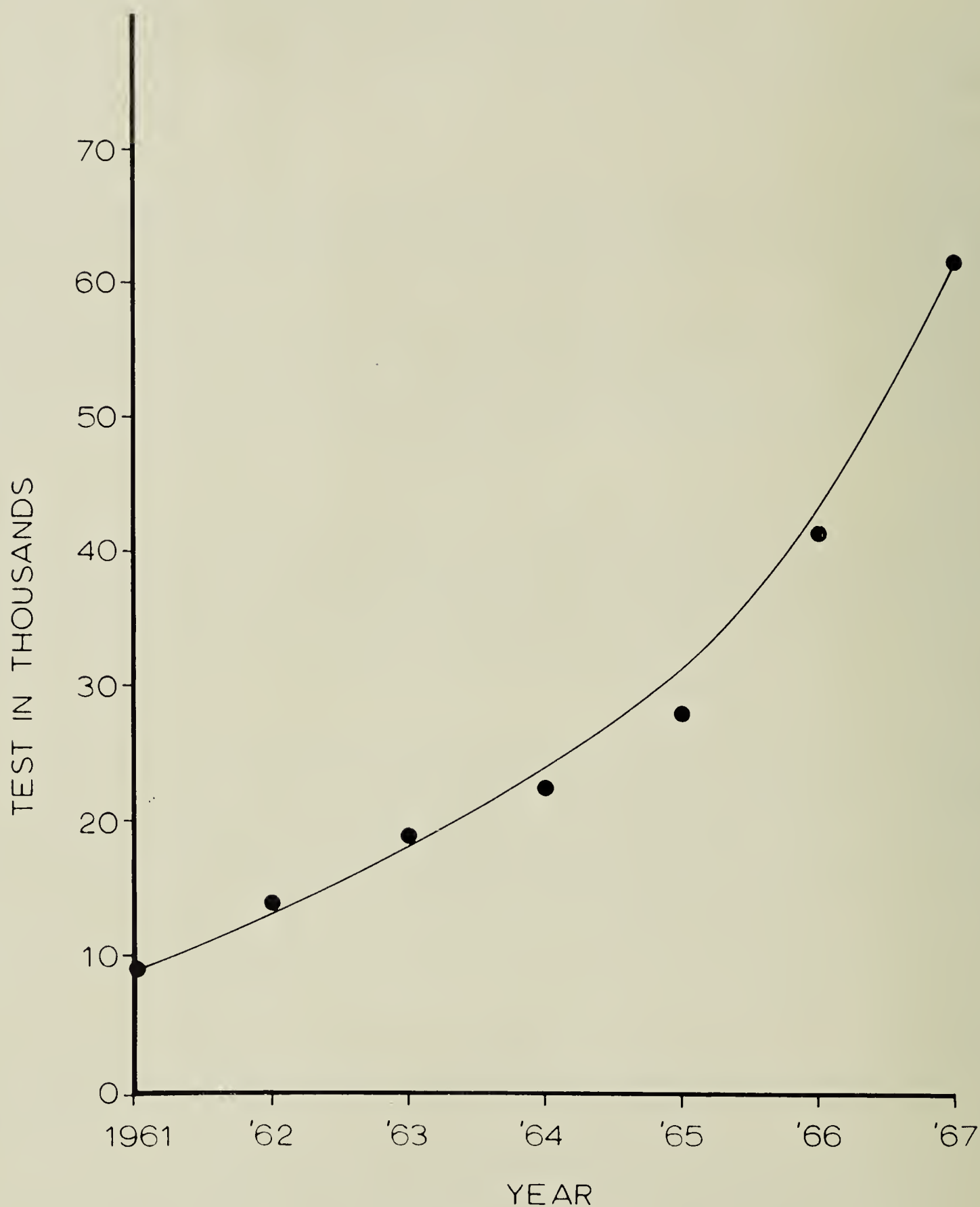
Among visitors to the Laboratories during 1967 was Sir Macfarlane Burnet who had been engaged by the Western Australian Branch of the Australian Society for Microbiology to address them on trends in medical immunology.

3. *Biochemistry*

The year's work is summarised in Table 3(b) of the Appendix. Once again there is a dramatic increase in work load—of the order of 50 per cent. in both tests and

BIOCHEMISTRY

INCREASE IN TESTS 1961 - 67



unit values. As has been found repeatedly elsewhere in biochemistry sections which serve a hospital population, the rate of increase is an ever growing one. The graph at the end of this report sketches the growth in total numbers of tests performed in this section. Table 3(a) also gives most of this information and shows that both in tests and unit values there has been a 50 per cent. increase in six years. In the last two years it has been decided not to include values related to the collection of blood, development work, preparation of reagents etc. This may give the impression of a slower rate of growth recently than has actually occurred. It is considered that the figures given without these additions are more realistic and more easily assessed.

A considerable amount of effort still goes in development work and the preparation of reagents for the main and country laboratories. In order to compare work done in 1966 and 1967 with that done in earlier years, figures including blood collection are shown in parenthesis in Table 3(a).

The staff of this division was again relatively static, though indications were not lacking that several members would shortly be leaving for a variety of reasons. Space was again at a premium. In order to attain greater efficiency both in biochemistry and haematology, it was planned to amalgamate the various biochemical sections in the three huts at present shared by haematology and biochemistry in the grounds of the hospital, and to bring the haematology and blood transfusion sections into closer proximity on the first floor of the hospital.

A good start was made towards the end of the year with automation of frequently requested biochemical techniques and with the provision of more sophisticated equipment. Six channels of automation were put into use, and electrolyte determinations, urea, cholesterol, calcium, uric acid and phosphate analyses were thus automated. Relatively little trouble was experienced. An atomic absorption spectrophotometer was purchased for metal analyses and put into operation. Plans were made and finance obtained for greater degrees of automation in the near future.

Control of precision and accuracy also demanded some of our attention. Values obtained by our service in the Animal Survey of the Australian College of Pathologists were again acceptable. Quality control is a subject to which increasing attention must be paid in the future in order to benefit as much as possible from our automated equipment.

Steps were taken to acquire the beginnings of a data processing unit in order to deal expeditiously with requests and results. It is hoped to automate the entire recording of requests and to facilitate billing procedures and printing of tests results in sections such as biochemistry and haematology etc.

Towards the end of the year the section undertook the biochemical work in a survey of children's health in Busselton, following on a similar survey in adults held previously. This entailed nearly 1,600 glucose, cholesterol, urea, calcium and uric acid analyses, and without automation these would have imposed a considerably greater strain on the staff.

All in all, during the year we feel that preliminary steps were taken to gear the work of the department to growing and modern concepts of biochemistry in an expanding State and hospital situation, and we look forward confidently to a continuation of this work.

4. *Blood Collection*

This service is shown separately, as in the 1966 Annual Report, as the same personnel are employed in the collection of specimens for both Biochemistry and Haematology.

Table 4 of the Appendix shows an increase in work over the 1966 figures.

5. *Haematology*

The work of this department is summarised in Table 5 of the Appendix. This shows a 30.5 per cent. increase in tests and 26 per cent. increase of unit values over the corresponding figures of 1966. The work done for the Sir Charles Gairdner Hospital again accounted for two-thirds of the total and showed an increase of 29 per cent. over that done in the previous year.

In both years the department participated in the Busselton Surveys. In the first of these years some 3,378 blood groupings, both Rh. and ABO, were performed,

and in 1967, 1,635 such groupings, of each sort. There is no apparent increase therefore in blood grouping in 1967 over 1966 but, if survey work is omitted, there would have been an increase of 73 per cent. in both ABO and Rhesus groupings (formerly known as major and minor). The main increases have been, as might be expected, in the estimations of basic parameters—haemoglobin levels, white cell counts, haematocrits, film examinations, etc. A considerably greater amount of screening is done nowadays for Rhesus antibodies.

Again, there were staff difficulties and at times the department was undermanned quite seriously. Agreement was obtained for the appointment of a senior technologist in blood bank work, who would also undertake coagulation studies, and arrangements were put in hand to send this officer to Melbourne in order to study recent advances in these two fields.

Rationalisation of space has led to the amalgamation of the various haematology and blood banking facilities on the first floor of the hospital, where the available space for their work was somewhat increased over that previously used. Biochemistry, as mentioned elsewhere, was transferred in toto to the huts in the hospital grounds.

There is no doubt that a greater degree of automation is essential in this department and a start was made with the provision of a Coulter Counter which handles the routine white cell counting at the moment. Haemoglobins, haematocrits and basic parameters such as M.C.H.C., M.C.V. should be automated, especially in view of the current staff shortages which are not likely to be alleviated for some time. Many techniques—electrophoresis, blood volume, etc., which can be used, are not being systematically performed because of staff difficulties.

6. *Serology*

The work of this laboratory is set out in Table 6 of the Appendix, and shows an increase of 14.6 per cent. over that of 1966.

New Work Undertaken

Following her attendance at a "Post-Graduate Course on Cell Culture" conducted at the University of Melbourne in January-February, the senior technologist prepared the way for chromosome studies to begin at the newly constructed Pyrtton Training Centre for mentally retarded children at Bassendean. Children at the Nathaniel Harper Home in Guildford have been studied, followed by selected children at Irrabeena Centre and Claremont Mental Hospital.

The chromosome work so far carried out has been on leucocytes, using a micro-technique. Counts of at least 30 mitoses are done on each patient and at least 5 of these are photographed and karyotyped.

Other new work in Serology was in virus serology when we started doing Rubella H.I. tests towards the end of the year (previously, only Rubella C.F. tests were done). It is hoped that a large number of tests will be undertaken in future using this method, as it supplies very valuable immunological information on pregnant women. Micro titre equipment has been purchased for doing this test and its use may well be extended to other serological viral procedures.

Pregnancy Tests

We have now almost completely abandoned the biological tests for pregnancy. A few female rabbits are still held for occasional Friedman tests but toads are no longer kept. Two immunological pregnancy tests are run in parallel with each urine received, one being a haemagglutination-inhibition test done in tubes (U.C.G. Test) and the other a latex agglutination-inhibition test done on a slide (Gravindex Slide Test). The reagents for these two tests are derived from two different sources.

It is still our practice to carry out pregnancy tests on those urines tested by the U.C.G. test in Branch Laboratories. A comparison has been made of results obtained on 609 specimens and details of discrepancies are as follows :—

| No. of Patients | Central Laboratory | | Branch Laboratory |
|-----------------|---|------------|-------------------|
| | Results (More than one test) U.C.G. | Other Test | |
| 9 | Negative | Negative | Positive |
| 3 | Positive | Positive | Negative |
| 3 | Positive | Negative | Negative |
| | (later all these tests became negative) | | |
| 1 | Positive | Negative | Negative |
| | (later all tests became positive) | | |

Survey

The sera collected in the Busselton survey were tested for Hydatid and Mycoplasma pneumoniae antibodies. This completed the work started in 1966.

7. Departments of Morbid Anatomy and Cytology

Tables 7(a) and 7(b) of the Appendix show details of the work done in 1967. The usual steady increase in biopsy work was manifest during the year—15 per cent. greater than in 1966, which itself was 9 per cent. greater than in 1965. The material from the Sir Charles Gairdner Hospital hardly increased, and that from the Commonwealth declined, chiefly due to the appointment of a pathologist at Kalgoorlie and the diversion of Repatriation material to private pathologists, but there was a steady increase of material from State hospitals which more than offset this decline. Forensic autopsies again showed a considerable increase in numbers with the growth of a reorganised forensic pathology section, and more hospital autopsies were performed not only for the Sir Charles Gairdner Hospital but also for various other hospital units in Perth and elsewhere.

The Cytology Department, after a rather disappointing year in 1966, showed an upward trend in its work. Both lung cytology and cervical cytology had an impressive rate of growth.

Morbid Anatomy

Staff and Working Space—Both these shortages continued through 1967 and the remarks made in 1966 could be used again without any great alteration. Biopsy work, which would require the services of two full-time pathologists if the load accepted elsewhere in this State or the Eastern States in similar institutions is accepted as normal, is shared by often two or at most three pathologists who are considerably employed in other departments most of their time—one member of the staff supervises haematology and the Director, besides administration, is responsible for much of the cytology and some forensic work. Technological staff was again in short supply and frequent changes were made—again not making for efficiency. At long last the problem of air conditioning was settled in the hut used for histology, but no extra space was available. The mortuary of the hospital is small (one table), with cramped changing quarters and no provision for spectators. When three or more autopsies are to be done in a day, especially if the University team is interested, a considerable amount of unnecessary waiting occurs.

Equipment—A sledge microtome, better processing equipment and an automatic knife sharpener were ordered. Post-mortem equipment for country laboratories was distributed.

Scope of Work—The weekly clinico-pathological conferences were continued with great success and have proved continuously popular. One week per month the University Department of Pathology has now accepted responsibility for these but the Public Health Laboratory Service provides the material for the other weeks of the month. The heart studies conducted by the Director have continued throughout the year.

Forensic Pathology

It was decided that the District Medical Officer should restrict himself to road deaths, and the Forensic Pathologist is now responsible for autopsy work of a medico-legal nature in suspected felonies and sudden deaths. As pointed out previously, the number of forensic autopsies continues to increase. More and more medico-legal autopsies at Fremantle are performed by our staff directly in the absence of the Fremantle Police Surgeon.

Occasional demands were met from country districts but, fortunately, no great growth in numbers of such requests was apparent, for the travelling time involved in answering these is often excessive. We are naturally prepared to answer any call in a suspected murder case, but many country practitioners are helpful and prepared to conduct autopsies on suicides and sudden deaths with no indication of foul play.

The Director again supervised the serological work and maintained his liaison with the police, as heretofore.

Cytology

The working area and staff problems associated with this section were worrying during the year. After some deliberation, the cytology laboratory was established on the fifth floor of the hospital near the Animal House, a position not altogether satisfactory to anyone. Cytologists varied in numbers and degree of experience alarmingly during the year and we were finally left with one medical officer and one channel of referral, to the Director. There is every need for stability in this section and the appointment of a cytologist with necessary experience is long overdue. Trouble was also found in keeping our cytology screeners, chiefly because there was no specific salary structure for them and they felt that they could earn more in other occupations.

Despite these difficulties, a satisfactory rate of increase in work was apparent during the year, both in bronchial and uterine cytology. Although only a small fraction of the women at risk are examined by cervical smear at present, it seems that the message is reaching practitioners increasingly, and when one considers the incursions of private pathologists into the field, a much higher number of women must have been examined in 1967 than in 1966.

There were no great accessions of equipment in this section during the year.

IV. BRANCH LABORATORIES

The opening up of the North-West has posed increasing problems for the Laboratory Service with a demand for increased laboratory facilities not only for new townships and new ports but also for the older towns such as Port Hedland. The demands grow faster than can be met at present and this applies also to the Goldfields area with the discovery of large deposits of nickel and other expansion. In several instances our failure to supply laboratory services is dictated by lack of housing, not by lack of equipment or staff, since some staff recruited for stations such as Broome have not been able to proceed there because no housing is available, although caravan accommodation can be provided for the laboratory work. Similarly, other stations have reached saturation point as regards the work they can do with the staff at present

employed there. This applies particularly to Derby where no further staff can be sent because of the poor housing ; it also applies to Albany and to Geraldton, and this saturation having been reached in certain of the large country laboratories necessitates their shunting back work to the hard-pressed Central Laboratory, accounting for the failure to show an increase in the work done during the year and accounting for the small overall increase in the work done in the country laboratories as a whole. The service in these more remote areas with much increased living expenses and very few compensating factors means great difficulty in recruiting individuals to serve in those areas, particularly when housing and laboratory accommodation are poor. In spite of the manifest difficulties under which they work, the senior technologists in charge of the country laboratories do work uncomplainingly and do put in long hours of overtime for which they receive no recompense.

V. RESEARCH

Research is limited to necessary developmental work which it is hoped will find application in routine work later. It is shown for example in the Microbiology Division where developmental research work on Mycobacteria and culture methods has now become standardised into routine work. Similarly, methods of testing for pyelonephritis have become simplified and standardised and have become a practical procedure now in country areas. Other developmental work which has now become routine is the use of the strontium media for the growth of the Salmonellae and phage typing for Salmonella typhimurium.

In the Biochemistry Division the methods of automation are also now standard and are devoted at present to finding what constitutes a normal level.

VI. PUBLICATIONS

Publications from the Department are necessarily limited by lack of time and lack of staff. Among the few publications in 1967 were the following :

1. "A comparative Trial of Rappaport Enrichment Medium for the Isolation of Salmonellae from Faeces" by J. B. Iveson and N. Kovacs, published in the *Journal of Clinical Pathology*, Vol. 20, May 1967.
2. A letter to the Editor of the *Medical Journal of Australia* from Drs. Blackman and Laurie on Medical Laboratory Charges which was published in the issue of August 5, 1967, p. 271.
3. "Toxoplasmosis in the Rottnest Quokka (*Setonix Brachyurus*)" by D. G. A. Gibb, B. A. Kakulas, Dorothy H. Perret and Dorothy J. Jenkyn, published in *The Australian Journal of Experimental Biology and Medical Science*. Vol. XLIV (1966).

VII. TEACHING

Teaching continues at all levels—medical students, nurses, technologists and attendants. Each year a full cytology course is run for laboratory screeners. Assistance is also given to the Western Australian Institute of Technology in certain teaching responsibilities. These add significantly to our work load but are regarded as so important that we do not wish to cut them down.

Periodic lectures in forensic procedures are given to successive schools of Police Cadets.

VIII. SURVEYS

It is now becoming increasingly accepted that health surveys are the responsibility of health departments and this department is becoming more involved in such surveys as, for example, part of the Busselton survey.

IX. ACKNOWLEDGMENTS

We wish to record our appreciation of continued help given by workers both here and overseas in difficult cases. In this connection I would particularly mention the Sloan-Kettering Institute of New York and the Public Health Laboratory, Colindale, England.

I would also like to thank the Laboratory Staff for their efforts which have contributed in such large part to a successful year.

Appendix

Table 1 (a)

PUBLIC HEALTH CENTRAL LABORATORIES—SUMMARY OF WORK DONE, 1967

| | Source | | | | | | | | | | Total 1966 | | 1967 Increase | |
|--------------------------------------|--------------------------|-------------|-------|-------------|-------------|-------------|-------|-------------|-------------|-------------|------------|-------------|---------------|-------|
| | State | | | | C'wealth | | | | S.C.G.H. | | Total 1967 | | | |
| | Unit Values | | Tests | | Unit Values | | Tests | | Unit Values | | Tests | | Unit Values | |
| | Tests | Unit Values | Tests | Unit Values | Tests | Unit Values | Tests | Unit Values | Tests | Unit Values | Tests | Unit Values | Tests | Units |
| <i>Microbiology</i> | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | A. Clinical Bacteriology | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | B. Waters and Sewerage | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | C. Enteric Diseases | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | D. Mycobacteria | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | E. Mycology | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | F. Virology | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| <i>Biochemistry</i> | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| <i>Haematology</i> | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| <i>Serology</i> | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| <i>Histopathology</i> | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| A. Histopathology and Morbid Anatomy | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| B. Cytology | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

Table 1 (b)
PUBLIC HEALTH BRANCH LABORATORIES—SUMMARY OF WORK DONE, 1967

| | Total—1967 | | Total—1966 | | Increase—1967 | |
|---------------------|------------|-------------|------------|-------------|--------------------|-------------|
| | Tests | Unit values | Tests | Unit values | Tests | Unit values |
| Albany | 21,246 | 110,422 | 30,823 | 122,020 | % | % |
| Bunbury | 40,525 | 232,121 | 35,711 | 225,465 | .... | .... |
| Busselton | 8,436 | 40,408 | 7,280 | 30,902 | 13.5 | 3.0 |
| Carnarvon | 8,868 | 42,977 | 2,406 | 29,792 | 15.9 | 30.8 |
| | | | | | more than 3½ times | 44.3 |
| Claremont | 9,779 | 38,815 | 24,827 | 99,064 | .... | .... |
| Derby | 15,851 | 92,720 | 13,997 | 76,034 | 13.2 | 21.9 |
| Geraldton | 21,003 | 101,247 | 18,497 | 92,229 | 13.5 | 9.8 |
| Manjimup | 10,404 | 56,081 | 9,531 | 42,629 | 9.2 | 31.6 |
| Merredin | 7,744 | 43,567 | 3,738 | 17,621 | 107.2 | 147.2 |
| Narrogin | 14,491 | 82,703 | 14,812 | 74,762 | .... | 10.6 |
| Northam | 12,553 | 67,896 | 17,570 | 66,019 | .... | 2.8 |
| Port Hedland | 8,016 | 41,475 | 5,851 | 36,614 | 37.0 | 13.3 |
| Wooroloo | 12,993 | 61,059 | 9,677 | 60,453 | 34.3 | 1.0 |
| Wyndham | 7,644 | 40,820 | 5,263 | 31,400 | 45.2 | 30.0 |
| Collie | 2,904 | 14,183 | | | | |
| Margaret River | 1,925 | 8,179 | | | | |
| Total | 204,382 | 1,074,673 | 199,983 | 1,005,004 | 2.2 | 6.9 |

Table 2 (a)
CLINICAL BACTERIOLOGY—WORK DONE 1967

| | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|--------------------------|--------|---------------|----------|--------|---------------|---------------|------------------|
| | State | Common-wealth | Hospital | Others | | | |
| Animal Inoculations | 12 | .... | .... | .... | 12 | 88 | % |
| Blood Specimens | 77 | 83 | 356 | 6 | 522 | 392 | 33.2 |
| C.S.F. Specimens | 24 | 9 | 261 | 51 | 345 | 244 | 41.4 |
| Faeces Specimens | 16 | 1 | 43 | .... | 60 | 1,777 | .... |
| Foodstuffs: Fresh | 392 | 2 | .... | .... | 394 | 311 | 26.7 |
| Tinned or Frozen | 85 | 2 | .... | .... | 87 | 66 | 31.8 |
| Sensitivity Tests | 3,219 | 545 | 3,289 | 400 | 7,453 | 7,384 | 0.9 |
| Serous Effusions | 8 | 20 | 298 | 3 | 329 | 307 | 7.2 |
| Sputum | 972 | 672 | 5,230 | 131 | 7,005 | 4,432 | 58.1 |
| Swabs all Sources | 1,539 | 257 | 1,331 | 216 | 3,343 | 9,781 | .... |
| Urine Examinations | 517 | 1,046 | 5,360 | 595 | 7,518 | 6,762 | 11.2 |
| Vaginal Specimens | 843 | 72 | 134 | .... | 1,049 | 996 | 5.3 |
| Venereal Diseases | 3,117 | 1,333 | 84 | .... | 4,534 | 4,601 | .... |
| Water | 103 | 1 | .... | 12 | 116 | 69 | 68.1 |
| Others | 4,192 | 2 | 96 | 15 | 4,305 | 625 | Nearly 7 times |
| Totals— | | | | | | | |
| Tests | 15,116 | 4,045 | 16,482 | 1,429 | 37,072 | 37,835 | .... |
| Unit Values | 87,928 | 22,556 | 86,190 | 8,361 | 205,035 | 242,260 | .... |

Table 2(b)
WATER AND SEWERAGE SURVEYS—WORK DONE 1967

| | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|--------------------------|--------|---------------|----------|--------|---------------|---------------|------------------|
| | State | Common-wealth | Hospital | Others | | | |
| Water: A. Drinking | 6,208 | .... | .... | .... | 6,208 | 6,509 | % |
| B. River, Ocean | 2,235 | .... | .... | .... | 2,235 | 2,110 | 5.9 |
| C. Sewerage | 485 | .... | .... | .... | 485 | 309 | 57.0 |
| D. Membrane Filters .... | .... | .... | .... | .... | .... | 188 | .... |
| Cool Drinks | 18 | .... | .... | .... | 18 | 13 | 38.5 |
| Total: | | | | | | | |
| Tests | 8,946 | .... | .... | .... | 8,946 | 9,129 | .... |
| Unit Values | 89,460 | .... | .... | .... | 89,460 | 91,290 | .... |

Table 2 (c)
ENTERIC DISEASES LABORATORY—WORK DONE 1967

| | | | | | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|--------------------|------|------|------|------|---------|-------------------|----------|--------|---------------|---------------|----------------------|
| | | | | | State | Common- wealth | Hospital | Others | | | |
| | | | | | | | | | | | % |
| Animal Inoculation | .... | .... | .... | .... | 7 | .... | .... | .... | 7 | .... | .... |
| Blood Specimens | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Faeces specimens | .... | .... | .... | .... | 6,248 | 417 | 409 | .... | 7,074 | 4,103 | 72·4 |
| Foodstuffs: Fresh | .... | .... | .... | .... | 525 | .... | .... | .... | 525 | 95 | 5½ times |
| Frozen/Tinned | .... | .... | .... | .... | 136 | .... | .... | .... | 136 | 124 | 9·7 |
| Fertilisers | .... | .... | .... | .... | .... | .... | .... | .... | .... | 30 | .... |
| Sensitivities | .... | .... | .... | .... | 738 | 26 | 24 | .... | 788 | 183 | more than 4 times |
| Sputum | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Others | .... | .... | .... | .... | 1,595 | 54 | 1 | .... | 1,650 | 1,127 | 46·4 |
| Total: | | | | | | | | | | | |
| Tests | .... | .... | .... | .... | 9,249 | 497 | 434 | .... | 10,180 | 5,662 | 79·8 |
| Unit Values | .... | .... | .... | .... | 142,244 | 5,207 | 4,742 | .... | 152,193 | 71,873 | 111·8 |

Table 2 (d)
TUBERCULOSIS SECTION—EXAMINATIONS IN 1967

| Type of Examinations | | | | | | | | 1967 Total | 1966 Total | 1967 Increase |
|--------------------------------|------|------|------|------|------|--------|-------|---------------|---------------|------------------|
| <i>Sputum :</i> | | | | | | | | | | % |
| Direct Smears | .... | .... | .... | .... | .... | 37 | } | 23,232 | 24,006 | .... |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 11,496 | | | | |
| Cultures | .... | .... | .... | .... | .... | 11,496 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | 203 | | | | |
| <i>Gastric Contents :</i> | | | | | | | | | | |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 293 | } | 599 | 526 | 13·9 |
| Cultures | .... | .... | .... | .... | .... | 293 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | 13 | | | | |
| <i>Laryngeal Swabs :</i> | | | | | | | | | | |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 35 | } | 74 | 2 | 37 times |
| Cultures | .... | .... | .... | .... | .... | 35 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | 4 | | | | |
| <i>Pleural Fluids :</i> | | | | | | | | | | |
| Sulas | .... | .... | .... | .... | .... | — | } | 417 | 334 | 24·9 |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 139 | | | | |
| Cultures | .... | .... | .... | .... | .... | 139 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | 139 | | | | |
| <i>Bronchial Lavage :</i> | | | | | | | | | | |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 26 | } | 52 | 44 | 18·2 |
| Cultures | .... | .... | .... | .... | .... | 26 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | — |  |  |  |  |
| <i>Cerebral Spinal Fluid :</i> | | | | | | | | | | |
| Direct Smears | .... | .... | .... | .... | .... | — | } | 20 | 46 | .... |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 6 | | | | |
| Cultures | .... | .... | .... | .... | .... | 7 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | 7 | | | | |
| <i>Urine :</i> | | | | | | | | | | |
| Direct Smears | .... | .... | .... | .... | .... | — | } | 1,969 | 1,758 | 12·0 |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 657 | | | | |
| Cultures | .... | .... | .... | .... | .... | 657 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | 655 | | | | |
| <i>Miscellaneous :</i> | | | | | | | | | | |
| Direct Smears | .... | .... | .... | .... | .... | 6 | } | 4,789 | 1,953 | 145·2 |
| Centrifuged Deposits | .... | .... | .... | .... | .... | 2380 | | | | |
| Cultures | .... | .... | .... | .... | .... | 2087 | | | | |
| Direct Guinea Pig inoculations | .... | .... | .... | .... | .... | 316 | | | | |
| Smears for M. Leprae | .... | .... | .... | .... | .... | .... | 51 | 28 | 82·1 | |
| Virulence Tests | .... | .... | .... | .... | .... | .... | 47 | .... | .... |  |
| Sensitivity Tests | .... | .... | .... | .... | .... | .... | 893 | 1,615 | .... |  |
| Confirmation Tests | .... | .... | .... | .... | .... | .... | 1,011 | 1,375 | .... |  |
| Total Examinations | | | | | | | | 33,154 | 31,687 | 4·6 |
| Tests Unit Values | | | | | | | | 187,991 | 184,883 | 1·7 |
| Improvement Work .... |  |  |  |  |  |  |  | .... | 5,152 | .... |
| Tests Units |  |  |  |  |  |  |  | .... | 41,260 | .... |

Table 2 (e)

MYCOLOGY—WORK DONE 1967

| | | | | | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|---------------------------|------|------|------|------|--------|-------------------|----------|--------|---------------|---------------|------------------|
| | | | | | State | Common- wealth | Hospital | Others | | | |
| Collection of Specimens | .... | .... | .... | .... | 1,003 | .... | .... | .... | 1,003 | 859 | % 16·8 |
| Sputum | .... | .... | .... | .... | 3,300 | .... | .... | .... | 3,330 | 3,271 | 0·9 |
| Swabs | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| C.S.F. and Other Fluids | .... | .... | .... | .... | 2,856 | .... | .... | .... | 2,856 | 2,570 | 11·1 |
| Skin, Hair, etc. | .... | .... | .... | .... | 989 | .... | .... | .... | 989 | 1,079 | .... |
| Special Examinations | .... | .... | .... | .... | .... | .... | .... | .... | .... | 12 | .... |
| Cervical and Other Smears | .... | .... | .... | .... | 36 | .... | .... | .... | 36 | 12 | 3 times |
| Animal Inoculations | .... | .... | .... | .... | 21 | .... | .... | .... | 21 | .... | .... |
| Mycological Smears | .... | .... | .... | .... | 968 | .... | .... | .... | 968 | 779 | 24·3 |
| Sensitivities | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Total: | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Tests | .... | .... | .... | .... | 9,173 | .... | .... | .... | 9,173 | 8,582 | 6·9 |
| Unit Values | .... | .... | .... | .... | 59,497 | .... | .... | .... | 59,497 | 56,946 | 4·5 |

Table 2 (f)

VIROLOGY SECTION—WORK DONE 1967

| | | | | | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|----------------------------------|------|------|------|------|---------|-------------------|----------------------|--------|---------------|---------------|------------------|
| | | | | | State | Common- wealth | Gairdner Hospital | Others | | | |
| Preparation of Inocula | .... | .... | .... | .... | 3,058 | .... | .... | .... | 3,058 | 3,263 | % |
| Tissue Culture | .... | .... | .... | .... | 8,213 | .... | .... | .... | 8,213 | 11,702 | .... |
| Egg Inoculation | .... | .... | .... | .... | 715 | .... | .... | .... | 715 | 2,271 | .... |
| Animal Inoculation | .... | .... | .... | .... | 7,992 | .... | .... | .... | 7,992 | 9,448 | .... |
| Neutralisation | .... | .... | .... | .... | 10,164 | .... | .... | .... | 10,164 | 8,676 | 17·1 |
| Haemadsorption | .... | .... | .... | .... | 707 | .... | .... | .... | 707 | 776 | .... |
| Haemagglutination and inhibition | .... | .... | .... | .... | 2,261 | .... | .... | .... | 2,261 | 3,413 | .... |
| Sterility Tests | .... | .... | .... | .... | 2,565 | .... | .... | .... | 2,565 | 2,457 | 4·4 |
| Others | .... | .... | .... | .... | 854 | .... | .... | .... | 854 | 657 | 30·0 |
| Total : | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Tests | .... | .... | .... | .... | 36,529 | .... | .... | .... | 36,529 | 42,663 | .... |
| Unit Values | .... | .... | .... | .... | 245,903 | .... | .... | .... | 245,903 | 312,534 | .... |

Table 2 (g)

PARASITOLOGY RESULTS—IDENTIFIED CENTRAL LABORATORIES

| Parasite | | | | | No. of Identifications | |
|---------------------------|------|------|------|------|------------------------|--|
| Ancylostoma duodenale | .... | .... | .... | .... | 42 | |
| Strongyloides stercoralis | .... | .... | .... | .... | 8 | |
| Giardia lamblia | .... | .... | .... | .... | 50 | |
| Trichuris trichiura | .... | .... | .... | .... | 58 | |
| Hymenolepis nana | .... | .... | .... | .... | 51 | |
| Echinococcus granulosus | .... | .... | .... | .... | 1 | |
| Enterobius vermicularis | .... | .... | .... | .... | 6 | |
| Ascaris lumbricoides | .... | .... | .... | .... | 5 | |

Table 2 (h)
MYCOPLASMA SPP. IOSLATIONS DURING 1967 FROM CLINICAL MATERIAL

| Nature of Specimen | M. hominis I | M. fermentans | M. pharyngis | M. salivarium | M. Spp. | Tested | Isolations |
|--------------------------|--------------|---------------|--------------|---------------|---------|---------------|------------|
| I <i>Urogenital</i> | | | | | | | |
| Cervical.... | 90 | 4 | .... | .... | 16 | 178 | 110 |
| Vaginal | 104 | 3 | .... | .... | 10 | 209 | 117 |
| Urethral | 55 | 1 | .... | .... | 6 | 185 | 62 |
| Penile | 4 | .... | .... | .... | .... | 25 | 4 |
| Prostate Fl. .... | .... | .... | .... | .... | .... | 3 | .... |
| Urine .... | .... | .... | .... | .... | .... | 3 | .... |
| II <i>Respiratory</i> | | | | | | | |
| Sputum | 10 | .... | 13 | 214 | 23 | 775 | 260 |
| Throat Swab .... | .... | .... | 1 | 22 | 1 | 85 | 24 |
| Nasal Swab .... | .... | .... | .... | 2 | .... | 18 | 2 |
| III <i>Miscellaneous</i> | | | | | | | |
| Serous fluid .... | .... | .... | .... | 1 | .... | 1 | 1 |
| Pleural fluid .... | .... | .... | .... | 2 | .... | 3 | 2 |
| Synovial fluid .... | .... | .... | .... | .... | .... | 2 | .... |
| Mouth Swab .... | .... | .... | .... | .... | .... | 4 | .... |
| Gingival swab .... | .... | .... | .... | .... | .... | 1 | .... |
| Eye swab .... | .... | .... | .... | .... | .... | 2 | .... |
| Wound swab .... | .... | .... | .... | .... | .... | 9 | .... |
| Post Mortem .... | .... | .... | .... | .... | .... | 38 | .... |
| | | | | | | (17 Cadavers) | |
| Totals | 263 | 8 | 14 | 241 | 56 | 1,541 | 584 |

Table 3 (a)
BIOCHEMISTRY—WORK LOAD 1961-1967

| Year | | | | | | | | No. of Tests | Increase in Year | Units Work done | Increase in year |
|------|------|------|------|------|------|------|------|--------------|------------------|-----------------|------------------|
| | | | | | | | | | % | | % |
| 1961 | .... | .... | .... | .... | .... | .... | .... | 9,616 | .... | 100,455 | .... |
| 1962 | .... | .... | .... | .... | .... | .... | .... | 14,472 | 50·5 | 137,819 | 27·9 |
| 1963 | .... | .... | .... | .... | .... | .... | .... | 19,257 | .... | 179,333 | .... |
| 1964 | .... | .... | .... | .... | .... | .... | .... | 22,752 | 18·1 | 199,219 | 11·1 |
| 1965 | .... | .... | .... | .... | .... | .... | .... | 28,065 | 23·4 | 296,144 | 48·7 |
| 1966 | .... | .... | .... | .... | .... | .... | .... | 35,260 | 48·7 | 311,371 | 46·0 |
| | | | | | | | | (41,735) | | (432,294) | |
| 1967 | .... | .... | .... | .... | .... | .... | .... | 51,892 | 47·2 | 467,201 | 50·0 |
| | | | | | | | | (60,967) | | (512,576) | |

Bracketed figures—tests and units including collections, development work etc.

Table 3 (b)
BIOCHEMISTRY DEPARTMENT—WORK DONE, 1967

| Work Done | | | | | | | | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|--------------------|------|------|------|------|------|------|------|--------|---------------|-------------------|--------|---------------|---------------|------------------|
| | | | | | | | | State | Common-wealth | Gairdner Hospital | Others | | | |
| Scrum/Plasma Tests | .... | .... | .... | .... | .... | .... | .... | 8,959 | 3,487 | 36,170 | 1,602 | 50,218 | 33,687 | % 49·1 |
| C.S.F. Tests | .... | .... | .... | .... | .... | .... | .... | 62 | .... | 237 | 49 | 348 | 337 | 3·3 |
| Gastric Contents | .... | .... | .... | .... | .... | .... | .... | .... | .... | 3 | .... | 3 | 3 | .... |
| Effusions | .... | .... | .... | .... | .... | .... | .... | 3 | 2 | 155 | 3 | 163 | 54 | 3 times |
| Urine Examinations | .... | .... | .... | .... | .... | .... | .... | 111 | 55 | 433 | 85 | 684 | 811 | .... |
| Metabolic Tests | .... | .... | .... | .... | .... | .... | .... | 20 | 8 | 147 | 6 | 181 | 130 | 39·2 |
| Others | .... | .... | .... | .... | .... | .... | .... | 63 | 72 | 132 | 28 | 295 | 238 | 23·9 |
| Totals—Tests | .... | .... | .... | .... | .... | .... | .... | 9,218 | 3,624 | 37,277 | 1,773 | 51,892 | 35,260 | 47·2 |
| Unit Values | .... | .... | .... | .... | .... | .... | .... | 75,964 | 43,136 | 325,704 | 22,397 | 467,201 | 311,371 | 50·0 |

Table 4
BLOOD COLLECTION

| | | | | | | | 1967 | | 1966 | |
|------------------------------|------|------|------|------|------|------|-------------|---------|-------------|--------|
| | | | | | | | Collections | Units | Collections | Units |
| Biochemistry | .... | .... | .... | .... | .... | .... | 9,075 | 45,375 | 6,475 | 32,375 |
| Haematology | .... | .... | .... | .... | .... | .... | 13,868 | 69,340 | 11,516 | 57,580 |
| Total | .... | .... | .... | .... | .... | .... | 22,943 | 114,715 | 17,991 | 89,955 |
| Increase in—Collections | | | | | | | Units | .... | } 27.5% | |

Table 5
HAEMATOLOGY DEPARTMENT—WORK DONE 1967

| Tests Done | | | | | | | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|--------------------------------|------|------|------|------|------|------|--------|-------------------|----------------------|--------|---------------|---------------|------------------|
| | | | | | | | State | Common- wealth | Gairdner Hospital | Others | | | |
| <i>Red Cells—</i> | | | | | | | | | | | | | % |
| Total levels | .... | .... | .... | .... | .... | .... | 8 | 4 | 3 | 3 | 18 | 8 | 125 |
| Haematocrit | .... | .... | .... | .... | .... | .... | 859 | 1,517 | 6,912 | 763 | 10,051 | 8,037 | 25.1 |
| Absolute Values | .... | .... | .... | .... | .... | .... | 850 | 1,518 | 6,823 | 764 | 9,955 | 8,006 | 24.3 |
| Sedimentation | .... | .... | .... | .... | .... | .... | 401 | 1,260 | 5,511 | 122 | 7,294 | 6,029 | 21 |
| Film Examination | .... | .... | .... | .... | .... | .... | 2,497 | 1,579 | 7,130 | 666 | 11,872 | 8,226 | 44.3 |
| Fragility tests | .... | .... | .... | .... | .... | .... | 1 | 2 | 6 | .... | 9 | 4 | 125 |
| Reticulocytes | .... | .... | .... | .... | .... | .... | 10 | 79 | 410 | 12 | 511 | 347 | 47.3 |
| Stipple cells | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 | .... | .... |
| Hb. levels | .... | .... | .... | .... | .... | .... | 2,514 | 1,520 | 6,938 | 784 | 11,756 | 8,122 | 44.7 |
| Platelets | .... | .... | .... | .... | .... | .... | 340 | 596 | 2,482 | 344 | 3,762 | 3,566 | 5.5 |
| <i>White Cells—</i> | | | | | | | | | | | | | |
| Total | .... | .... | .... | .... | .... | .... | 2,361 | 1,341 | 6,205 | 576 | 10,483 | 6,861 | 52.8 |
| Differential | .... | .... | .... | .... | .... | .... | 2,355 | 1,320 | 6,190 | 513 | 10,378 | 6,813 | 52.4 |
| L.E. Cells | .... | .... | .... | .... | .... | .... | 37 | 5 | 212 | 20 | 274 | 155 | 76.8 |
| Direct Eosinophil count | .... | .... | .... | .... | .... | .... | 5 | 1 | 149 | 2 | 157 | 148 | 6.1 |
| <i>Blood Grouping—</i> | | | | | | | | | | | | | |
| Major | .... | .... | .... | .... | .... | .... | 2,526 | 17 | 959 | 662 | 4,164 | 4,841 | .... |
| Minor | .... | .... | .... | .... | .... | .... | 2,526 | 17 | 959 | 662 | 4,164 | 4,841 | .... |
| Compatibility | .... | .... | .... | .... | .... | .... | .... | 45 | 3,096 | .... | 3,141 | 2,580 | 21.7 |
| Rh Antibodies | .... | .... | .... | .... | .... | .... | 989 | 17 | 961 | 779 | 2,746 | 795 | 3½ times |
| Genotyping | .... | .... | .... | .... | .... | .... | 1 | .... | .... | 5 | 6 | 49 | .... |
| <i>Bone Marrow Examination</i> | | | | | | | 8 | 5 | 51 | 6 | 70 | 47 | 48.9 |
| Vit. B12 Assay | .... | .... | .... | .... | .... | .... | 132 | 87 | 161 | 74 | 454 | 531 | .... |
| <i>Coagulation Tests—</i> | | | | | | | | | | | | | |
| Prothrombin Time | .... | .... | .... | .... | .... | .... | 145 | 509 | 2,811 | 29 | 3,494 | 2,809 | 24.4 |
| Bleeding Time | .... | .... | .... | .... | .... | .... | 17 | 5 | 78 | 2 | 102 | 68 | 50.0 |
| Clotting Time | .... | .... | .... | .... | .... | .... | 18 | 11 | 191 | 1 | 221 | 68 | 3 times |
| Clot Retraction | .... | .... | .... | .... | .... | .... | 8 | 1 | 61 | 1 | 71 | 18 | 4 times |
| Others | .... | .... | .... | .... | .... | .... | 44 | 34 | 108 | 21 | 207 | 112 | 84.8 |
| Totals—Tests | .... | .... | .... | .... | .... | .... | 18,653 | 11,490 | 58,407 | 6,811 | 95,361 | 73,081 | 30.5 |
| Unit Values | .... | .... | .... | .... | .... | .... | 80,270 | 43,104 | 232,351 | 29,403 | 385,128 | 305,998 | 25.9 |

Table 6
SEROLOGY DEPARTMENT—WORK DONE 1967

| Work Done | | | | | | | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|--|------|------|------|------|------|------|---------|-------------------|----------------------|--------|---------------|---------------|------------------|
| | | | | | | | State | Common- wealth | Gairdner Hospital | Others | | | |
| Treponemal Tests | .... | .... | .... | .... | .... | .... | 28,344 | 2,411 | 768 | .... | 31,523 | 26,672 | 18.2 |
| Gonococcal Tests | .... | .... | .... | .... | .... | .... | 2,568 | 389 | 22 | .... | 2,979 | 2,290 | 30.1 |
| Hydatid Tests | .... | .... | .... | .... | .... | .... | 159 | 8 | 27 | .... | 194 | 149 | 30.2 |
| Bacterial agglutinations | .... | .... | .... | .... | .... | .... | 4,212 | 304 | 401 | .... | 4,917 | 7,040 | .... |
| Rheumatic Tests | .... | .... | .... | .... | .... | .... | 2,674 | 615 | 403 | 378 | 4,070 | 4,270 | .... |
| Leptospiral Tests | .... | .... | .... | .... | .... | .... | 1,027 | 8 | 28 | .... | 1,063 | 2,063 | .... |
| Viral, Rickettsial and Protozoal Tests | .... | .... | .... | .... | .... | .... | 8,969 | 629 | 1,140 | .... | 10,738 | 8,769 | 22.5 |
| Hormone Tests | .... | .... | .... | .... | .... | .... | 2,229 | 12 | 86 | 1,089 | 3,416 | 2,554 | 33.8 |
| Medico-Legal Tests | .... | .... | .... | .... | .... | .... | 929 | .... | .... | .... | 929 | 2,232 | .... |
| Chromosome Studies | .... | .... | .... | .... | .... | .... | 131 | .... | .... | .... | 131 | .... | Started 1967 |
| Others | .... | .... | .... | .... | .... | .... | 179 | 1 | 20 | .... | 200 | 312 | .... |
| Totals—Tests | .... | .... | .... | .... | .... | .... | 51,421 | 4,377 | 2,895 | 1,467 | 60,160 | 56,351 | 6.8 |
| Unit Values | .... | .... | .... | .... | .... | .... | 360,068 | 31,397 | 25,751 | 16,605 | 433,821 | 378,384 | 14.6 |

Table 7 (a)
HISTOPATHOLOGY AND MORBID ANATOMY—WORK DONE, 1967

| Work Done | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|---------------------------|---------|-------------------|----------------------|--------|---------------|---------------|------------------|
| | State | Common- wealth | Gairdner Hospital | Others | | | |
| <i>Autopsies—</i> | | | | | | | % |
| Forensic | 413 | .... | .... | .... | 413 | 307 | 34·5 |
| Others | 42 | .... | 152 | .... | 194 | 131 | 48·1 |
| <i>Sections—</i> | | | | | | | |
| Autopsy sp. Forensic | 6,409 | .... | .... | .... | 6,409 | 3,070 | 108·8 |
| Autopsy sp. Others | 2,968 | .... | 2,417 | .... | 5,385 | 2,984 | 80·5 |
| Biopsy specimens | 2,445 | 928 | 1,972 | 4,035 | 9,380 | 8,170 | 14·8 |
| Animal Specimens | 71 | .... | .... | .... | 71 | 237 | .... |
| <i>Special Staining—</i> | | | | | | | |
| Autopsy specimens | 929 | .... | .... | .... | 929 | 548 | 69·5 |
| Biopsy specimens | 2,533 | .... | .... | .... | 2,533 | 1,553 | 63·1 |
| Frozen Sections | 143 | .... | 22 | .... | 165 | 120 | 37·5 |
| Total—Examinations | 15,953 | 928 | 4,563 | 4,035 | 25,479 | 17,120 | 48·8 |
| Units | 323,470 | 13,920 | 96,565 | 60,525 | 494,480 | 337,740 | 46·4 |

Table 7 (b)
CYTOLOGY—WORK DONE, 1967

| Work Done | Source | | | | 1967 Total | 1966 Total | 1967 Increase |
|---------------------------|--------|-------------------|----------------------|-----------------|------------------|---------------|------------------|
| | State | Common- wealth | Gairdner Hospital | Others | | | |
| Exfoliative Cytology | 3,533 | 2,239 | 3,322 | 6,182 | 15,276 | 13,270 | % 15·1 |
| Total—Examinations | 3,533 | 2,239 | 3,322 | 6,182 | 15,276 | 13,270 | 15·1 |
| Units | 52,995 | 33,585 | 49,830 | 92,730 | 229,140 | 199,050 | 15·1 |
| | | 1967 | | 1966 | | Increase 1967 | |
| | | No. of Cases | No. of Slides | No. of Cases | No. of Slides | Cases | Slides |
| Lung Specimens | | 3,550 | 4,362 | 3,002 | 3,779 | % 18·3 | % 15·4 |
| Cervical Specimens | | 2,881 | 7,912 | 2,236 | 6,203 | 25·7 | 27·6 |
| Other Specimens | | 363 | 855 | 263 | 785 | 38·0 | 8·9 |
| Special Slides .... |  | .... | 2,147 | .... | 2,503 | .... | .... |
| Total | | 6,794 | 15,276 | 5,501 | 13,270 | 23·5 | 15·1 |

Appendix III

Tuberculosis Control Branch

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Director

Total notifications of all kinds of tuberculosis were 171, as compared with 170 in 1966 and 178 in 1965. There were 142 new cases (109 pulmonary and 33 non-pulmonary), as against 134 and 148 for the previous two years. Transfers in from other States accounted for 11 cases ; there were 18 re-notifications, (10% of the total) as compared with 27 (16.7%) and 24 (13.7%) in 1966 and 1965 respectively. Atypical disease showed a slight decline, 15 cases being proven as compared with 19 in the previous year ; the majority were due to M. Battey.

Excluding the usual group of young patients with bacillary negative glandular disease, the incidence in age groups below 25 continues to be low. This age range corresponds with those persons not subject to mass compulsory chest surveys. Peak notifications were in the 40-54 age range.

In summary : although the two years from June 30th, 1965 to June 30th, 1967, has seen a rapid increase in population—61,000, a much greater increase than in any previous similar period in the State's history—the numbers of tuberculosis cases have remained stable.

NOTIFICATIONS TO THE TUBERCULOSIS REGISTER

Form and organism causing disease :—

| Form | M. TB. (Human Type) | Proven Atypical Mycobacteria Runyon Group | | | Total |
|------------------------------|---------------------------|---|------|------|-------|
| | | I | II | III | |
| Pulmonary : adult type | 123 | 1 | 4 | 6 | 134 |
| childhood type | 1 | .... | .... | .... | 1 |
| Pleurisy with effusion | 2 | .... | .... | .... | 2 |
| Non-Pulmonary : | | | | | |
| Glands | *18 | .... | 1 | 3 | 22 |
| Genitourinary | 7 | .... | .... | .... | 7 |
| Bone and Joint | 3 | .... | .... | .... | 3 |
| Abdominal | 2 | .... | .... | .... | 2 |

* Comparative skin testing suggested that the majority of these infections were due to atypical mycobacteria, although the organisms could not be isolated in the laboratory.

No cases proven infection due to M. Bovis occurred. One child however developed glandular disease after contact with a highly infected herd. Although sections of these glands showed histological evidence of tuberculosis, mycobacteria could not be cultured from the excised tissue.

SOURCE OF NOTIFICATIONS

Chest Clinics continued to play the most important role in detection, patients with pulmonary disease from this source increasing slightly (by 5%) as compared with the previous year. No significant changes occurred in the proportion of notifications received from other sources.

BACILLARY POSITIVE CASES

Sixty-seven per cent of new cases were proven by isolation and identification of the mycobacteria concerned. Atypical mycobacteria were not accepted as causative unless

there were repeated isolations in the presence of a progressive lesion. The percentages for previous years were :

| | | | | | |
|------|------|------|------|------|-----|
| 1961 | .... | .... | .... | .... | 52% |
| 1962 | .... | .... | .... | .... | 60% |
| 1963 | .... | .... | .... | .... | 75% |
| 1964 | .... | .... | .... | .... | 77% |
| 1965 | .... | .... | .... | .... | 75% |
| 1966 | .... | .... | .... | .... | 71% |

In 101 cases the organism was identified as *M. tuberculosis hominis*, in one an atypical mycobacterium Group I (*M. Kansasii*) was responsible, in 5 a *Scotochromogen* (Group II) and in 9 patients *M. Battey* (Group III). No cases of infection in humans due to *M. avium* have yet been reported in this State.

Of the 111 patients from whom *M. tuberculosis* was isolated during the year (that is, including reactivations and relapses), 105 had been admitted to hospital, and six were awaiting admission at the 31st December. Twenty-three patients were still bacillary positive at the latter date and were continuing treatment with anti-tuberculosis drugs. Fifteen patients with progressive disease due to atypical organisms became positive, three only remaining positive at the 31st of December, suggesting improved results of treatment of this type of case.

At the end of the year there were only 5 patients who were classified as having chronic sputum positive disease due to *M. tuberculosis*, the figure for atypical infections being 18.

BACTERIOLOGICAL SENSITIVITY

M. Tuberculosis

Two patients not previously treated with anti-tuberculosis drugs produced organisms resistant to PAS. There were no instances of primary resistance to other drugs. Of the previously treated cases, 7 produced organisms resistant to Streptomycin and there were 9 resistant to PAS and 7 to Isoniazid. Two strains were resistant to both Streptomycin and Isoniazid, and 5 to all three primary drugs.

Atypical Disease

Of the 15 strains causing new disease, all were completely resistant to the 3 primary drugs. Ten were sensitive to Ethionamide, 9 to Ethambutol and 8 to B.663. Thus the combination ethionamide-ethambutol-B.663 theoretically should prove effective in controlling this kind of disease.

REACTIVATIONS

Of the 18 re-notifications (10% of the total) 13 had at the time of their original notification been proved to have active tuberculosis. These, with the possible exception of 1, can be accepted as true reactivated cases.

The following is a comparison with figures for the previous three years :

| | | | | | | | | | | Number of Renotifications | | | | Total for 4 Years |
|-----|---|--|--|--|--|--|--|--|--|------------------------------|------|------|------|-------------------------|
| | | | | | | | | | | 1964 | 1965 | 1966 | 1967 | |
| (a) | Diagnosis not confirmed at time of original notification (not true reactivations) | | | | | | | | | 2 | 7 | 7 | 5 | 21 |
| (b) | Diagnosis confirmed at time of original notification (true reactivations) | | | | | | | | | | | | | |
| (1) | Had never received chemotherapy | | | | | | | | | 8 | 6 | 5 | 4 | 23 |
| (2) | Had received inadequate chemotherapy | | | | | | | | | | | | | |
| | Without surgery | | | | | | | | | 13 | 5 | 13 | 5 | 36 |
| | With surgery | | | | | | | | | 5 | 2 | 1 | 4 | 12 |
| (3) | Had apparently received adequate chemotherapy | | | | | | | | | | 2 | | | 2 |
| (c) | Other (transferred back to State, etc.) | | | | | | | | | 2 | 3 | 1 | | 6 |

Of the 73 patients who had true reactivations between 1964 and 1967, almost all had had their original treatment before 1955. This represents a relapse rate of 6 per 1000 per year in persons with previously documented episodes of tuberculosis who are now resident in the State. It appears that patients who have been adequately treated, even those with advanced lesions, uncommonly relapse. However a further period of observation may be necessary before this can be firmly established.

STATE OF THE CASE REGISTER

The “ active ” register is summarised in Table 4. These figures are based on the criteria adopted for the Danish Tuberculosis Index, that is, names are removed from the Active Register and placed on the file of previous cases after a bacillary negative period of 3 years following completion of chemotherapy.

Two hundred and fourteen names were removed from the Register during 1967, 122 being transferred to the file of previous cases ; 21 left the State and there were 37 deaths, the majority from causes other than tuberculosis.

FILE OF PREVIOUS CASES

At the 31st of December there were 3,143 names on the file of previous cases, that is persons resident in the State who had had clinically documented episodes of tuberculosis. These patients are subject to regular annual review.

DEATHS

Tuberculosis deaths accounted for 1.0 per 100,000 population. Causes were :

- 1. Progressive pulmonary disease due to :
 - (a) M. tuberculosis 5 (including one case of terminal miliary disease).
 - (b) M. Battey 1
- 2. Old healed tuberculosis with extensive fibrosis with or without other conditions 3

MASS COMPULSORY CHEST X-RAY SURVEYS

Surveys were conducted on a compulsory basis for persons of 25 years of age and over, covering the following shires and towns :

| <i>Metropolitan :</i> | <i>Country :</i> |
|-----------------------|------------------|
| Peppermint Grove | Three Springs |
| Cottesloe | Mingenew |
| Claremont | Irwin |
| Mosman Park | Greenough |
| Nedlands | Geraldton |
| Subiaco | Chapman Valley |
| Perth (part) | Northampton |
| | Mullewa |

A total of 62,993 persons were X-rayed, as compared with 57,291 in the previous year and 64,025 in 1965. The active Tuberculosis case rate for the 1967 surveys was 0.19 per 1,000 persons X-rayed. It appears that many persons who would formerly

have been diagnosed by mass surveys are now being diagnosed as a result of selective group follow-up through chest clinics.

Other conditions discovered were :

| | | | | | | |
|--|------|------|------|------|------|-----|
| Bronchogenic carcinoma | .... | .... | .... | .... | .... | 10 |
| Other malignant neoplasms | .... | .... | .... | .... | .... | 4 |
| Pneumonia and pneumonitis | .... | .... | .... | .... | .... | 75 |
| Lung cysts | .... | .... | .... | .... | .... | 2 |
| Bronchiectasis | .... | .... | .... | .... | .... | 14 |
| Pneumoconiosis (not previously recorded) | .... | .... | .... | .... | .... | 12 |
| Hamartoma | .... | .... | .... | .... | .... | 1 |
| Sarcoidosis | .... | .... | .... | .... | .... | 1 |
| Heart conditions | .... | .... | .... | .... | .... | 161 |

PERSONS BORN OUTSIDE AUSTRALIA

Tables 5 and 6 show that the relative incidence in this group as compared with the Australian born has been consistently maintained. It is more than double in both males and females. Persons of Greek and Yugoslav origin showed a particularly high rate, while the British born were at about the average level for those born outside Australia.

British full fare paying passengers contributed 23 cases to the Register ; 2 of these developed active tuberculosis within one year of arrival and 3 from one to five years after arrival.

SURVEY OF NEW ARRIVALS

Leaflets are distributed to new arrivals at disembarkation points through officials of the Immigration Department, requesting attendance for chest x-ray as required under Section 293A of the Health Act. Two reminders are sent to non attenders.

The following figures show that 71.1% actually attended, as compared with 52.4% for the previous year.

| | | |
|---|---------|---------|
| | 1966 | 1967 |
| Estimated number of new arrivals | 18,096 | 15,673 |
| Attended as a result of pamphlet distribution at disembarkation point | 2,335 | 5,065 |
| Attended following first reminder notice | 6,826 | 5,486 |
| Attended following second reminder notice | 313 | 591 |
| | 9,474 | 11,142 |
| | (52.4%) | (71.1%) |

Abnormal findings were :

| | | |
|--|------|------|
| | 1966 | 1967 |
| Pulmonary tuberculosis, active | 4 | 2 |
| Pulmonary tuberculosis, inactive or apparently inactive and brought under clinical supervision | 61 | 56 |
| Other chest conditions (excluding minor abnormalities) | 35 | 47 |

TUBERCULIN TESTING AND B.C.G. VACCINATION

As well as the usual procedure of offering vaccination to negative reactors proceeding overseas to countries where tuberculosis incidence is high, and to other risk groups such as medical and nursing personnel and contacts, vaccination was offered to second year secondary school students, 11,730 were tested using the Heaf gun method, 4.85% showing positive reactions (including grade I). The majority of negative reactors accepted B.C.G. vaccination.

DOMICILIARY TREATMENT

The Visiting Sisters paid 1,700 visits during the year to patients receiving drugs on a domiciliary basis. In addition 500 visits were arranged through the Silver Chain Nursing organisation. The latter were undertaken mainly for the purpose of close supervision of patients who were considered to be unreliable drug takers.

80.9% of patients who were receiving domiciliary treatment were recorded by the Visiting Sisters to be reliable drug takers, 8.6% being definitely unreliable and the remaining 10.5% being of doubtful reliability.

The responsibility of the visiting nursing staff in this aspect of tuberculosis control is inevitably increasing.

IDENTIFICATIONS OF ATYPICAL MYCOBACTERIA

In Table 8 is shown those patients from whom atypical mycobacteria were isolated for the first time during 1967. Total figures since 1961 are as follows :

| | | | | | | |
|----------------|------|------|------|------|------|-----|
| 1961 | .... | .... | .... | .... | .... | 112 |
| 1962 | .... | .... | .... | .... | .... | 81 |
| 1963 | .... | .... | .... | .... | .... | 105 |
| 1964 | .... | .... | .... | .... | .... | 105 |
| 1965 | .... | .... | .... | .... | .... | 51 |
| 1966 | .... | .... | .... | .... | .... | 85 |
| 1967 | .... | .... | .... | .... | .... | 75 |
| Total Patients | | | | | | 614 |

Many isolations were made from sputum specimens from patients with chronic lung diseases such as chronic bronchitis, chronic bronchial asthma with bronchitis, silicosis, bronchiectasis, etc.

Approximately one in six of these patients proved to have progressive disease due to atypical mycobacteria. The latter are listed in Table 10.

Table 1
TUBERCULOSIS—MAIN STATISTICAL FIGURES

| Year | Mean Popu- lation 1,000s. | Notifications | | | | No. on Register (Pulm.) at 31st Dec. | No. on Register per 100,000 (Pulm.) | Number Receiv- ing T.B. Allow- ance at 31st Dec. | Deaths | | | Death Rate per 100,000 | | |
|------|------------------------------------|---------------------------------------|---------------|-------|-------------------------|--|---|---|--------|---------------|-------|---------------------------|--------------|------|
| | | Pulm. (incl. Pleural effus.) | Non- Pulm. | Total | Pulm. per 100,000 | | | | Pulm. | Non- Pulm. | Total | Pulm. | All Forms | |
| 1950 | | 558 | 586 | 18 | 604 | 104.8 | 2,100 | 376 | 515 | 125 | 3 | 128 | 22.4 | 22.9 |
| 1951 | | 580 | 467 | 37 | 504 | 80.4 | 2,402 | 413 | 474 | 76 | 6 | 82 | 13.1 | 14.1 |
| 1952 | | 601 | 508 | 49 | 557 | 84.5 | 2,574 | 428 | 396 | 75 | 7 | 82 | 12.5 | 13.6 |
| 1953 | | 621 | 378 | 34 | 412 | 60.6 | 2,762 | 445 | 361 | 43 | 3 | 46 | 6.9 | 7.4 |
| 1954 | | 640 | 348 | 34 | 382 | 54.3 | 2,769 | 432 | 326 | 57 | 4 | 61 | 8.9 | 9.5 |
| 1955 | | 659 | 413 | 39 | 452 | 62.7 | 2,965 | 450 | 330 | 31 | 2 | 33 | 4.7 | 5.0 |
| 1956 | | 677 | 424 | 44 | 468 | 62.6 | 2,900 | 428 | 264 | 43 | 3 | 46 | 6.3 | 6.8 |
| 1957 | | 692 | 332 | 32 | 364 | 47.9 | 2,786 | 403 | 198 | 36 | 1 | 37 | 5.2 | 5.3 |
| 1958 | | 706 | 355 | 24 | 379 | 50.3 | 2,726 | 386 | 213 | 22 | 4 | 26 | 3.1 | 3.4 |
| 1959 | | 726 | 320 | 34 | 354 | 44.1 | 2,684 | 369 | 182 | 24 | .... | 24 | 3.3 | 3.3 |
| 1960 | | 731 | 296 | 34 | 330 | 40.5 | 2,388 | 327 | 148 | 29 | 1 | 30 | 4.0 | 4.1 |
| 1961 | | 737 | 209 | 41 | 250 | 28.4 | 1,349 | 183 | 89 | 18 | 1 | 19 | 2.4 | 2.6 |
| 1962 | | 755 | 243 | 25 | 268 | 32.2 | 1,333 | 177 | 90 | 24 | 4 | 28 | 3.2 | 3.7 |
| 1963 | | 773 | 216 | 28 | 244 | 27.9 | 1,218 | 158 | 92 | 13 | .... | 13 | 1.7 | 1.7 |
| 1964 | | 790 | 176 | 32 | 208 | 22.3 | 1,221 | 154 | 88 | 20 | .... | 20 | 2.5 | 2.5 |
| 1965 | | 806 | 153 | 25 | 178 | 19.0 | 919 | 114 | 65 | 12 | .... | 12 | 1.5 | 1.5 |
| 1966 | | 836 | 134 | 36 | 170 | 16.0 | 840 | 100 | 64 | 16 | .... | 16 | 1.9 | 1.9 |
| 1967 | | 877 | 137 | 34 | 171 | 15.6 | 814 | 93 | 54 | 9 | .... | 9 | 1.0 | 1.0 |

Table
ANNUAL NOTIFICATIONS OF PULMONARY TUBERCULOSIS SHOWING STAGE OF DISEASE*

| Year | | Parenchymal Disease | | | | | | Pleural Effusion | | Total |
|------|------|---------------------|------|---------------------|------|----------|------|------------------|------|-------|
| | | Minimal | | Moderately Advanced | | Advanced | | | | |
| | | | % | | % | | % | | % | |
| 1952 | .... | 122 | 24.0 | 275 | 54.1 | 101 | 19.9 | 10 | 2.0 | 508 |
| 1953 | .... | 98 | 25.9 | 210 | 55.5 | 65 | 17.2 | 5 | 1.4 | 378 |
| 1954 | .... | 96 | 27.6 | 178 | 51.1 | 74 | 21.3 | .... | .... | 348 |
| 1955 | .... | 111 | 26.9 | 225 | 54.5 | 64 | 15.5 | 13 | 3.1 | 413 |
| 1956 | .... | 127 | 38.0 | 217 | 51.1 | 72 | 17.0 | 8 | 1.9 | 424 |
| 1957 | .... | 102 | 30.7 | 163 | 49.1 | 61 | 18.4 | 6 | 1.8 | 332 |
| 1958 | .... | 91 | 25.6 | 187 | 52.7 | 72 | 20.3 | 5 | 1.4 | 355 |
| 1959 | .... | 103 | 32.2 | 151 | 47.2 | 55 | 17.2 | 11 | 3.4 | 320 |
| 1960 | .... | 89 | 30.1 | 144 | 48.6 | 49 | 16.6 | 14 | 4.7 | 296 |
| 1961 | .... | 90 | 43.1 | 73 | 34.9 | 34 | 16.3 | 12 | 5.7 | 209 |
| 1962 | .... | 117 | 48.1 | 84 | 34.6 | 36 | 14.8 | 6 | 2.5 | 243 |
| 1963 | .... | 99 | 45.8 | 89 | 41.2 | 26 | 12.0 | 2 | 1.0 | 216 |
| 1964 | .... | 71 | 40.3 | 81 | 46.0 | 23 | 13.1 | 1 | 0.6 | 176 |
| 1965 | .... | 75 | 49.0 | 60 | 39.2 | 17 | 11.1 | 1 | 0.7 | 153 |
| 1966 | .... | 59 | 44.0 | 54 | 40.3 | 18 | 13.4 | 3 | 2.2 | 134 |
| 1967 | .... | 56 | 40.9 | 59 | 43.1 | 20 | 14.6 | 2 | 1.4 | 137 |

* Classified according to Diagnostic Standards N.T.A.

Table 3
TUBERCULOSIS NOTIFICATIONS FOR THE YEAR ENDED 31st DECEMBER 967
Showing Age, Sex, Form and Stage of Disease

| Group | Males | | | | | Females | | | | | Persons | | | | | Total |
|------------|-----------|------|------|-----------|---------------|-----------|------|------|-----------|---------------|-----------|------|------|-----------|---------------|-------|
| | Pulmonary | | | Non-Pulm. | Pleur. Effus. | Pulmonary | | | Non-Pulm. | Pleur. Effus. | Pulmonary | | | Non-Pulm. | Pleur. Effus. | |
| | Min. | Mod. | Adv. | | | Min. | Mod. | Adv. | | | Min. | Mod. | Adv. | | | |
| 0—4 .... | .... | .... | .... | 2 | .... | 1* | .... | .... | 6 | .... | 1* | .... | .... | 8 | .... | 9 |
| 5—9 .... | .... | .... | .... | 1 | .... | .... | .... | .... | 4 | .... | .... | .... | .... | 5 | .... | 5 |
| 10—14 .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... | .... | 1 | .... | .... | .... | 1 |
| 15—19 | 2 | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 2 | 1 | .... | .... | .... | 3 |
| 20—24 | 1 | .... | .... | .... | 1 | .... | .... | .... | .... | .... | 1 | .... | .... | .... | 1 | 2 |
| 25—29 | 3 | 1 | .... | .... | .... | 1 | 1 | .... | 5 | .... | 4 | 2 | .... | 5 | .... | 11 |
| 30—34 | 3 | 5 | 1 | 1 | .... | 2 | 1 | .... | .... | .... | 5 | 6 | 1 | 1 | .... | 13 |
| 35—39 | 3 | 4 | .... | 3 | .... | 1 | 1 | .... | 1 | .... | 4 | 5 | .... | 4 | .... | 13 |
| 40—44 | 7 | 3 | 2 | 2 | .... | .... | 2 | .... | 1 | .... | 7 | 5 | 2 | 3 | .... | 17 |
| 45—49 | 4 | 4 | 2 | 1 | .... | 1 | .... | .... | 1 | .... | 5 | 4 | 2 | 2 | .... | 13 |
| 50—54 | 9 | 4 | 4 | 1 | .... | .... | .... | .... | .... | .... | 9 | 4 | 4 | 1 | .... | 18 |
| 55—59 | 7 | 8 | 1 | .... | .... | .... | 1 | .... | 1 | .... | 7 | 9 | 1 | 1 | .... | 18 |
| 60—64 | 5 | 7 | 2 | .... | 1 | .... | 1 | .... | 1 | .... | 5 | 8 | 2 | 1 | 1 | 17 |
| 65—69 | 3 | 4 | 1 | .... | .... | .... | .... | .... | 2 | .... | 3 | 4 | 1 | 2 | .... | 10 |
| 70—74 | 1 | 4 | 2 | 1 | .... | .... | .... | .... | .... | .... | 1 | 4 | 2 | 1 | .... | 8 |
| 75— | 1 | 4 | 3 | .... | .... | 1 | 2 | 2 | .... | .... | 2 | 6 | 5 | .... | .... | 13 |
| Total | 49 | 48 | 18 | 12 | 2 | 7 | 11 | 2 | 22 | .... | 56 | 59 | 20 | 34 | 2 | 171 |

* Primary

Table 4
ANALYSIS OF REGISTER AS AT 31st DECEMBER, 1967
A. Pulmonary Tuberculosis
(exeluding Pleural Effusions)

| Activity | | | | | | | | | Number on Register according to original extent of lesions | | | Total |
|----------------|------|------|------|------|------|------|------|------|--|----------|----------|-------|
| | | | | | | | | | Minimal | Moderate | Advanced | |
| Active .... | .... | .... | .... | .... | .... | .... | .... | .... | 100 | 86 | 24 | 210 |
| Inactive— | | | | | | | | | | | | |
| 0—1 year .... | .... | .... | .... | .... | .... | .... | .... | .... | 36 | 38 | 11 | 85 |
| 1—2 year .... | .... | .... | .... | .... | .... | .... | .... | .... | 31 | 34 | 10 | 75 |
| 2—3 years .... | .... | .... | .... | .... | .... | .... | .... | .... | 58 | 54 | 12 | 124 |
| 3—4 years .... | .... | .... | .... | .... | .... | .... | .... | .... | 68 | 58 | 18 | 144 |
| 4—5 years .... | .... | .... | .... | .... | .... | .... | .... | .... | 70 | 44 | 17 | 131 |
| 5+ years .... | .... | .... | .... | .... | .... | .... | .... | .... | 17 | 14 | 5 | 36 |
| Total .... | .... | .... | .... | .... | .... | .... | .... | .... | 380 | 328 | 97 | 805 |

B. Pleural Effusion 9
C. Non-Pulmonary Tuberculosis 149
Total (all forms) 963

Table 5
WESTERN AUSTRALIA : TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH, 1961-1967 : MALES

| Country of Birth | Population at June 30, 1966 Thousands (Census) | Incidence per Thousand Persons | | | | | | | Total Notifica- tions, 1961-1967 |
|--|---|--------------------------------|------|------|------|------|------|------|---|
| | | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | |
| United Kingdom and Republic of Ireland | 54.9 | 0.92 | 0.93 | 0.66 | 0.67 | 0.61 | 0.59 | 0.53 | 223 |
| Germany | 2.9 | 0.74 | 0.37 | .... | .... | .... | 0.75 | .... | 5 |
| Greece | 3.1 | 0.87 | 0.87 | 0.43 | .... | .... | .... | 0.65 | 7 |
| Italy | 16.0 | 1.01 | 0.91 | 0.70 | 0.60 | 0.47 | 0.20 | 0.50 | 67 |
| Netherlands | 5.8 | 0.16 | 0.64 | 0.31 | .... | 0.16 | 0.16 | 0.17 | 10 |
| Poland | 2.8 | 2.50 | 0.33 | 1.85 | 1.07 | .... | 0.71 | 1.43 | 22 |
| Yugoslavia | 4.6 | 1.39 | 1.08 | 1.58 | 1.11 | 1.11 | 1.94 | 0.43 | 32 |
| Other European | 6.5 | 1.40 | 1.05 | 0.70 | 1.05 | 0.70 | 1.40 | 1.08 | 43 |
| Other Birthplaces | 11.8 | 0.86 | 1.09 | 1.19 | 0.74 | 1.23 | 0.61 | 0.68 | 55 |
| Total non-Australian born | 108.4 | 0.97 | 0.89 | 0.74 | 0.64 | 0.58 | 0.59 | 0.56 | 464 |
| Australian-born* | 318.2 | 0.30 | 0.37 | 0.34 | 0.31 | 0.22 | 0.26 | 0.20 | 602 |

* Full-blood aborigines excluded.

Table 6
WESTERN AUSTRALIA : TUBERCULOSIS INCIDENCE BY COUNTRY OF BIRTH, 1961-1967 : FEMALES

| Country of Birth | Population at June 30, 1966 Thousands (Census) | Incidence per Thousand Persons | | | | | | | Total Notifica- tions, 1961-1967 |
|--|---|--------------------------------|------|------|------|------|------|------|---|
| | | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | |
| United Kingdom and Republic of Ireland | 49.2 | 0.23 | 0.29 | 0.31 | 0.26 | 0.36 | 0.15 | 0.18 | 71 |
| Germany | 3.0 | 0.34 | .... | 0.34 | .... | .... | 0.34 | .... | 3 |
| Greece | 2.3 | 0.55 | 0.52 | 0.50 | 1.11 | .... | .... | 0.43 | 6 |
| Italy | 12.1 | 0.68 | 0.27 | 0.26 | 0.09 | 0.58 | 0.29 | 0.08 | 24 |
| Netherlands | 4.6 | .... | 0.39 | .... | .... | .... | .... | .... | 2 |
| Poland | 2.0 | 0.53 | 0.56 | .... | 2.10 | .... | .... | .... | 6 |
| Yugoslavia | 2.9 | .... | 1.67 | 1.60 | .... | 0.43 | .... | 0.34 | 10 |
| Other European | 4.4 | 0.75 | 0.73 | .... | 0.25 | 0.75 | 0.75 | 0.68 | 16 |
| Other Birthplaces | 9.8 | 0.45 | 0.29 | 0.14 | 0.45 | 0.15 | 0.15 | 0.20 | 13 |
| Total non-Australian born | 90.3 | 0.34 | 0.36 | 0.29 | 0.28 | 0.34 | 0.19 | 0.19 | 151 |
| Australian-born* | 319.7 | 0.16 | 0.16 | 0.13 | 0.14 | 0.12 | 0.09 | 0.08 | 256 |

* Full-blood aborigines excluded

Table 7
NOTIFICATIONS OF BRITISH FULL-FARE PAYING PASSENGERS

| Year of Notification | Persons Notified | | | | Total |
|----------------------|----------------------------------|---------------------------------------|---------------------------------------|---|-------|
| | Within One Year of Arrival | One to Five Years after Arrival | Five to Ten Years after Arrival | More than Ten Years after Arrival | |
| 1958 | 1 | 6 | 3 | 59 | 69 |
| 1959 | 4 | 1 | 6 | 32 | 43 |
| 1960 | 1 | 1 | 4 | 44 | 50 |
| 1961 | 2 | 2 | 3 | 35 | 42 |
| 1962 | 2 | 2 | 1 | 24 | 29 |
| 1963 | 2 | .... | 1 | 13 | 16 |
| 1964 | 3 | 2 | 1 | 13 | 19 |
| 1965 | 3 | 1 | 1 | 8 | 13 |
| 1966 | .... | 2 | 2 | 12 | 16 |
| 1967 | 2 | 3 | 1 | 17 | 23 |
| Total | 20 | 20 | 23 | 257 | 320 |

Table 8
PATIENTS FROM WHOM ATYPICAL MYCOBACTERIA WERE ISOLATED (FOR THE FIRST TIME) IN 1967

| Runyon Group | | | | Casual Isolations | Intermittent Isolations | Persistent Isolations | | | | Total |
|----------------|------|------|------|-------------------|-------------------------|-----------------------|-----------|-------|-------|-------|
| | | | | | | Atypical Tuberculosis | | | Other | |
| | | | | | | Pulm. | Non-Pulm. | Total | | |
| 1 | .... | .... | .... | 1 | .... | 1 | .... | 1 | ... | 2 |
| 2 | .... | .... | .... | 5 | 1 | 3 | 1 | 4 | .... | 10 |
| 3 | .... | .... | .... | *45 | 9 | 4 | 2 | 6 | 1 | 61 |
| 4 | .... | .... | .... | 2 | .... | .... | .... | .... | .... | 2 |
| Total Patients | | | | 53 | 10 | 8 | 3 | 11 | 1 | 75 |

* Includes 3 Renal

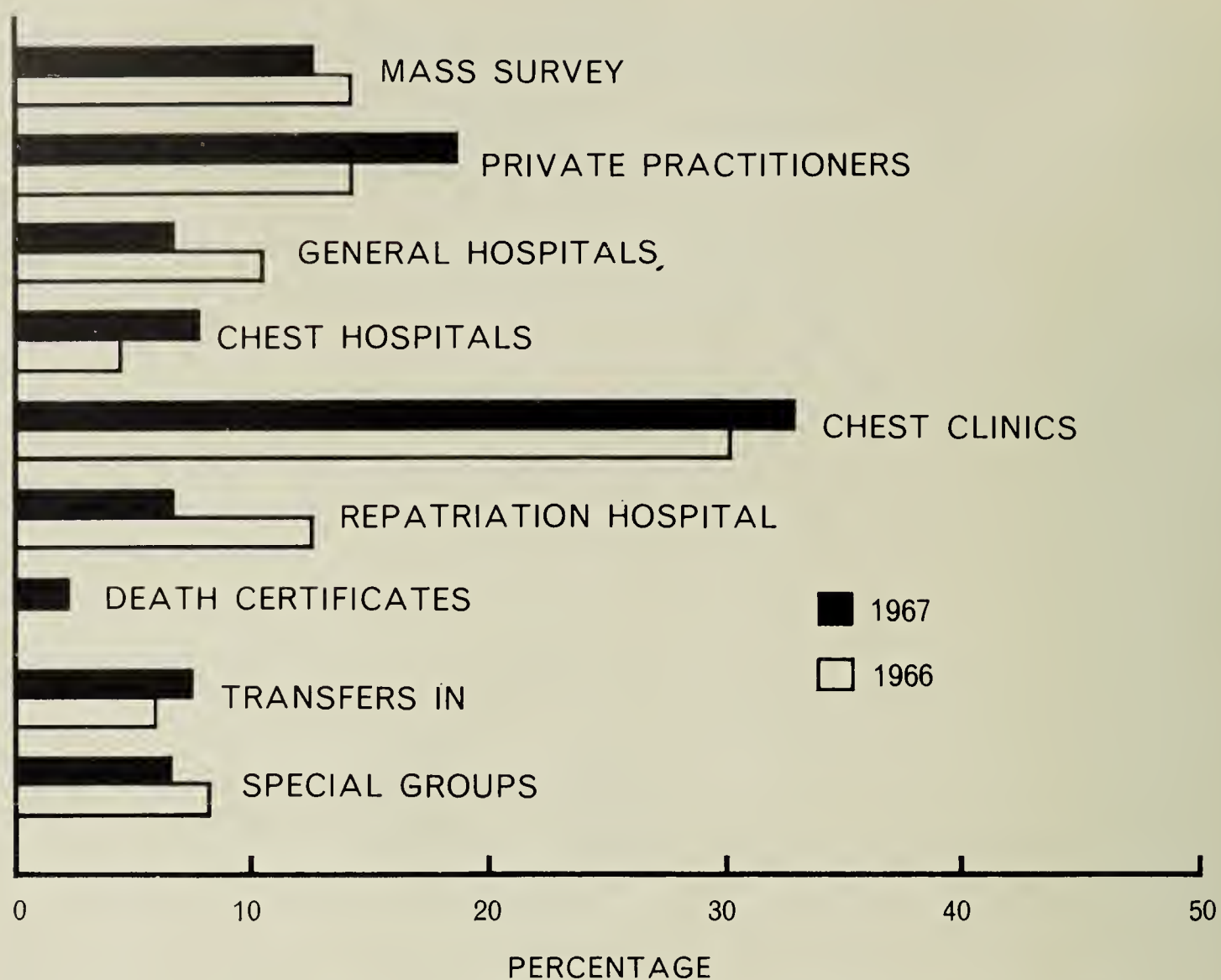
Table 9
CHILDREN NOTIFIED WITH MYCOBACTERIAL DISEASE OF LYMPH NODES

| Year | | | | | | | | Scotochromogens Identified (Runyon Group 2) | Battey Organisms Identified (Runyon Group 3) | M. TB. (Human) Identified | Cultures Negative |
|--------------------------|------|------|------|------|------|------|------|---|--|---------------------------|-------------------|
| 1961 | .... | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 |
| 1962 | .... | .... | .... | .... | .... | .... | 3 | 2 | .... | .... | 2 |
| 1963 | .... | .... | .... | .... | .... | .... | .... | 3 | .... | .... | 8 |
| 1964 | .... | .... | .... | .... | .... | .... | .... | 3 | 1 | .... | 4 |
| 1965 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | .... | 5 |
| 1966 | .... | .... | .... | .... | .... | .... | 2 | 6 | .... | .... | 7 |
| 1967 | .... | .... | .... | .... | .... | .... | 1 | 3 | .... | .... | 9 |
| Total number of children | | | | | | | | 6 | 19 | 1 | 36 |

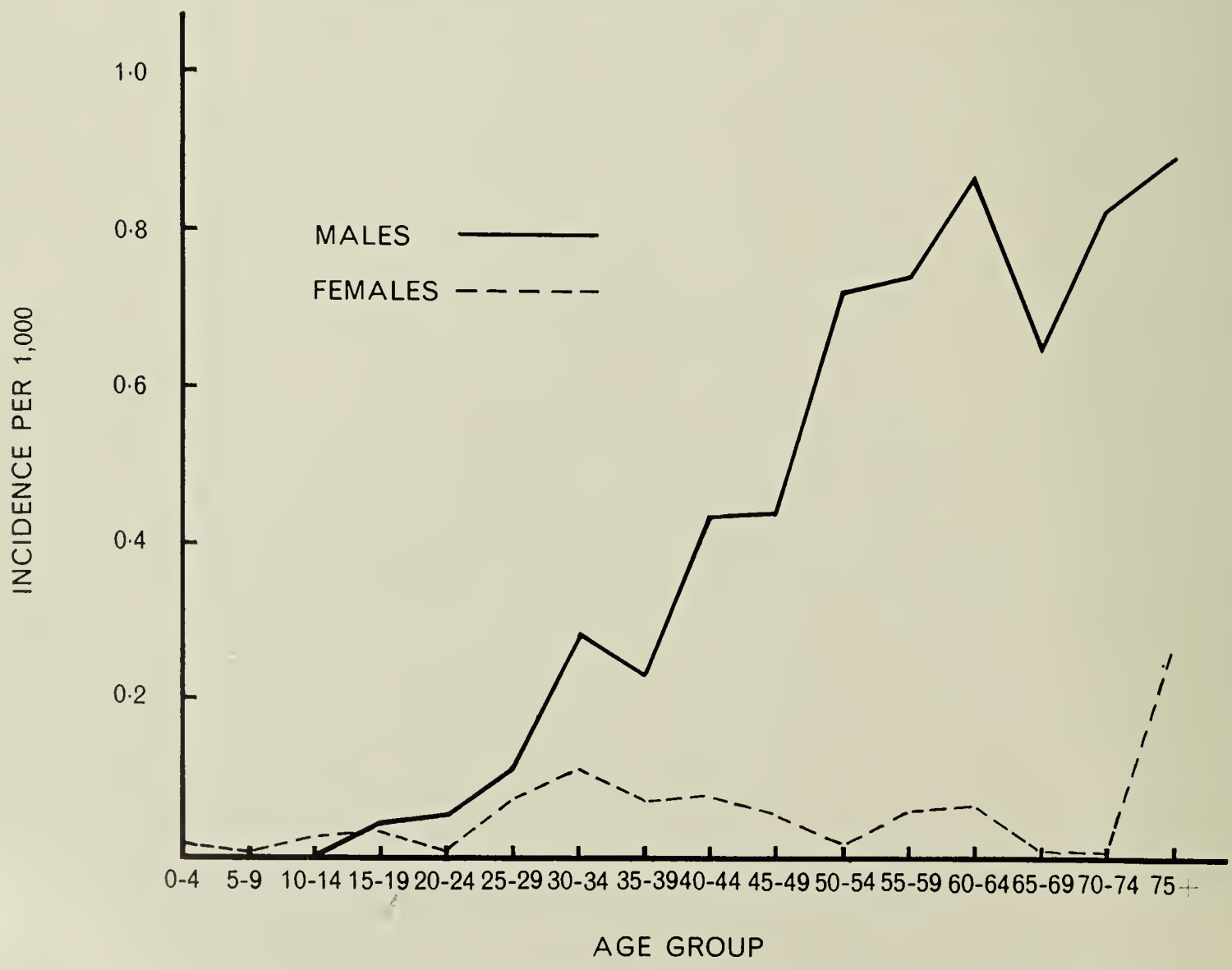
Table 10
PATIENTS NOTIFIED WITH ATYPICAL TUBERCULOSIS
(including reactivations)

| Year | | | | Runyon Group 1 | Runyon Group 2 | | | Runyon Group 3 (Battey) | | |
|-------|------|------|------|----------------|----------------|-------------|-------|-------------------------|-------------|-------|
| | | | | Pulm. | Pnlm. | Lymph Nodes | Total | Pulm. | Lymph Nodes | Total |
| 1955 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 |
| 1956 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 |
| 1957 | .... | .... | .... | .... | .... | .... | .... | 1 | .... | 1 |
| 1958 | .... | .... | .... | .... | .... | .... | .... | 4 | 1 | 5 |
| 1959 | .... | .... | .... | .... | .... | .... | .... | 10 | 2 | 12 |
| 1960 | .... | .... | .... | .... | 1 | .... | 1 | 11 | 1 | 12 |
| 1961 | .... | .... | .... | .... | 2 | .... | 2 | 11 | 1 | 12 |
| 1962 | .... | .... | .... | .... | 1 | 3 | 4 | 8 | 2 | 10 |
| 1963 | .... | .... | .... | .... | 3 | .... | 3 | 17 | 3 | 20 |
| 1964 | .... | .... | .... | .... | 6 | .... | 6 | 14 | 3 | 17 |
| 1965 | .... | .... | .... | .... | 2 | 2 | 2 | 13 | 1 | 14 |
| 1966 | .... | .... | .... | .... | 2 | 3 | 5 | 7 | 6 | 13 |
| 1967 | .... | .... | .... | .... | 1 | 4 | 5 | 6 | 3 | 9 |
| Total | | | | 5 | 22 | 6 | 28 | 104 | 23 | 127 |

GRAPH SHOWING THE SOURCE OF NOTIFICATION OF CASES OF PULMONARY TUBERCULOSIS AS A PERCENTAGE OF TOTAL NOTIFICATIONS



GRAPH SHOWING THE INCIDENCE PER 1,000 IN AGE GROUPS FOR PULMONARY TUBERCULOSIS IN 1967



Western Australia

Pulmonary Tuberculosis

| Year | | | | | | | Population in 1,000s | Notifications Received | Incidence Rate per 100,000 Population | Deaths Registered | Mortality Rate per 100,000 Population |
|------|------|------|------|------|------|------|-------------------------|---------------------------|--|----------------------|--|
| 1911 | .... | .... | .... | .... | .... | .... | 287 | 259 | 90.2 | 190 | 66.2 |
| 1912 | .... | .... | .... | .... | .... | .... | 301 | 429 | 142.5 | 220 | 73.1 |
| 1913 | .... | .... | .... | .... | .... | .... | 313 | 424 | 135.5 | 206 | 65.8 |
| 1914 | .... | .... | .... | .... | .... | .... | 323 | 353 | 109.3 | 229 | 70.9 |
| 1915 | .... | .... | .... | .... | .... | .... | 321 | 336 | 104.7 | 233 | 72.6 |
| 1916 | .... | .... | .... | .... | .... | .... | 313 | 511 | 163.5 | 225 | 71.9 |
| 1917 | .... | .... | .... | .... | .... | .... | 306 | 464 | 151.6 | 217 | 70.9 |
| 1918 | .... | .... | .... | .... | .... | .... | 308 | 432 | 140.5 | 245 | 79.5 |
| 1919 | .... | .... | .... | .... | .... | .... | 320 | 467 | 145.9 | 289 | 91.6 |
| 1920 | .... | .... | .... | .... | .... | .... | 330 | 442 | 133.9 | 259 | 78.4 |
| 1921 | .... | .... | .... | .... | .... | .... | 334 | 424 | 126.9 | 277 | 82.9 |
| 1922 | .... | .... | .... | .... | .... | .... | 341 | 387 | 113.8 | 256 | 75.1 |
| 1923 | .... | .... | .... | .... | .... | .... | 351 | 361 | 102.8 | 216 | 61.5 |
| 1924 | .... | .... | .... | .... | .... | .... | 363 | 381 | 104.6 | 228 | 62.8 |
| 1925 | .... | .... | .... | .... | .... | .... | 373 | 403 | 108.4 | 259 | 69.4 |
| 1926 | .... | .... | .... | .... | .... | .... | 381 | 415 | 108.2 | 252 | 66.1 |
| 1927 | .... | .... | .... | .... | .... | .... | 392 | 409 | 104.3 | 231 | 56.4 |
| 1928 | .... | .... | .... | .... | .... | .... | 408 | 395 | 96.8 | 282 | 69.1 |
| 1929 | .... | .... | .... | .... | .... | .... | 421 | 400 | 95.0 | 245 | 53.4 |
| 1930 | .... | .... | .... | .... | .... | .... | 429 | 569 | 132.6 | 218 | 50.8 |
| 1931 | .... | .... | .... | .... | .... | .... | 432 | 372 | 86.1 | 223 | 51.6 |
| 1932 | .... | .... | .... | .... | .... | .... | 435 | 339 | 77.9 | 203 | 46.7 |
| 1933 | .... | .... | .... | .... | .... | .... | 439 | 295 | 67.2 | 207 | 47.2 |
| 1934 | .... | .... | .... | .... | .... | .... | 442 | 287 | 64.9 | 218 | 49.3 |
| 1935 | .... | .... | .... | .... | .... | .... | 447 | 270 | 60.4 | 210 | 47.0 |
| 1936 | .... | .... | .... | .... | .... | .... | 452 | 338 | 74.8 | 193 | 42.7 |
| 1937 | .... | .... | .... | .... | .... | .... | 457 | 239 | 53.0 | 172 | 37.6 |
| 1938 | .... | .... | .... | .... | .... | .... | 464 | 247 | 53.2 | 177 | 38.1 |
| 1939 | .... | .... | .... | .... | .... | .... | 470 | 202 | 43.0 | 179 | 38.1 |
| 1940 | .... | .... | .... | .... | .... | .... | 473 | 231 | 48.8 | 181 | 38.3 |
| 1941 | .... | .... | .... | .... | .... | .... | 474 | 154 | 32.5 | 185 | 39.0 |
| 1942 | .... | .... | .... | .... | .... | .... | 477 | 113 | 23.7 | 175 | 36.7 |
| 1943 | .... | .... | .... | .... | .... | .... | 477 | 273 | 57.3 | 144 | 30.2 |
| 1944 | .... | .... | .... | .... | .... | .... | 481 | 219 | 45.4 | 134 | 27.9 |
| 1945 | .... | .... | .... | .... | .... | .... | 488 | 271 | 55.5 | 149 | 30.5 |
| 1946 | .... | .... | .... | .... | .... | .... | 493 | 343 | 69.6 | 163 | 33.1 |
| 1947 | .... | .... | .... | .... | .... | .... | 502 | 372 | 74.0 | 128 | 25.4 |
| 1948 | .... | .... | .... | .... | .... | .... | 515 | 325 | 63.1 | 157 | 30.5 |
| 1949 | .... | .... | .... | .... | .... | .... | 533 | 499 | 93.6 | 123 | 23.1 |
| 1950 | .... | .... | .... | .... | .... | .... | 558 | 586 | 104.8 | 129 | 23.1 |

DEATH CLASSIFICATIONS ACCORDING TO 6TH (1948) INTERNATIONAL LIST.

| | | | | | | | | | | | |
|------|------|------|------|------|------|------|-----|-----|-------|-----|------|
| 1950 | .... | .... | .... | .... | .... | .... | 558 | 586 | 104.8 | 125 | 22.4 |
| 1951 | .... | .... | .... | .... | .... | .... | 580 | 467 | 80.4 | 76 | 13.1 |
| 1952 | .... | .... | .... | .... | .... | .... | 601 | 508 | 84.5 | 75 | 12.5 |
| 1953 | .... | .... | .... | .... | .... | .... | 621 | 378 | 60.6 | 43 | 6.9 |
| 1954 | .... | .... | .... | .... | .... | .... | 640 | 348 | 54.3 | 57 | 8.9 |
| 1955 | .... | .... | .... | .... | .... | .... | 659 | 413 | 62.7 | 31 | 4.7 |
| 1956 | .... | .... | .... | .... | .... | .... | 677 | 424 | 62.6 | 43 | 6.3 |
| 1957 | .... | .... | .... | .... | .... | .... | 692 | 332 | 47.9 | 36 | 5.2 |
| 1958 | .... | .... | .... | .... | .... | .... | 706 | 355 | 50.3 | 22 | 3.1 |
| 1959 | .... | .... | .... | .... | .... | .... | 726 | 320 | 44.1 | 24 | 3.3 |
| 1960 | .... | .... | .... | .... | .... | .... | 731 | 296 | 40.5 | 29 | 4.0 |
| 1961 | .... | .... | .... | .... | .... | .... | 737 | 209 | 28.4 | 18 | 2.4 |
| 1962 | .... | .... | .... | .... | .... | .... | 755 | 243 | 32.2 | 24 | 3.2 |
| 1963 | .... | .... | .... | .... | .... | .... | 773 | 216 | 27.9 | 13 | 1.7 |
| 1964 | .... | .... | .... | .... | .... | .... | 790 | 176 | 22.3 | 20 | 2.5 |
| 1965 | .... | .... | .... | .... | .... | .... | 806 | 153 | 19.0 | 12 | 1.5 |
| 1966 | .... | .... | .... | .... | .... | .... | 836 | 134 | 16.0 | 16 | 1.9 |
| 1967 | .... | .... | .... | .... | .... | .... | 877 | 137 | 15.6 | 9 | 1.0 |

Appendix IV

Epidemiology and Special Services

Dr. R. Allen, Senior Medical Officer

1967 may be considered an historic year, as for the first time on record there have been no notifications during the year of Tetanus, Poliomyelitis or Diphtheria. This aim, achieved by active immunisation, must have seemed a remote pipe dream in the nineteen thirties, when Diphtheria notifications averaged over six hundred annually, and on three occasions exceeded one thousand.

The incidence of bowel infections remains at a high level, and the number of notifications of Infective Hepatitis (190) is the highest since 1961.

IMMUNISATION

Poliomyelitis

1967 saw the introduction of Sabin Oral Poliomyelitis Vaccine into Western Australia. Departmental policy concerning this vaccine follows recommendations by the National Health and Medical Research Council, and is aimed at offering three doses to as many persons as possible, regardless of previous Salk injections. In this State, as with the initial Salk Vaccine campaign in 1956, priority is being given to school-children, pre-school children, and certain groups of adults at risk, but age restrictions will be lifted at the conclusion of the child campaign during the latter part of 1968.

In addition to personal immunity, Sabin Vaccine confers high intestinal immunity, so that incidental transient symptomless infections do not occur. As a consequence polio virus may be eradicated from the community.

Public acceptance of Sabin Vaccine has been good, and parental consent has been granted in over 93 per cent. of children attending schools visited so far. Acceptance by the children is of course universal, for what child would refuse a lump of sugar when the alternative is an injection?

Since the commencement of the campaign on 1st June, 379,550 doses have been administered. Reactions following the vaccine have been rare and mild, consisting of a few influenza-like symptoms during the ensuing forty eight hours.

As expected with the introduction of Sabin Vaccine, the rate of Salk Vaccination has shown a dramatic reduction. This is expected to become even more marked next year, and will probably drop to an insignificant level in 1969.

Other Diseases

Immunisations given by the Epidemiology Section against diseases other than poliomyelitis fell during the year to 18,487 mainly due to these vaccinations being given elsewhere.

MEDICAL EXAMINATIONS

There were 926 medical examinations conducted during the year for male applicants to the Public Service.

TRACHOMA CONTROL

Field work by the Trachoma Unit was limited to the first half of the year, as the Sisters were seconded in June to assist in the Sabin Vaccination Campaign.

However, diagnosis and treatment visits were made to the Northern and Central Agricultural districts. A total of 371 cases of active trachoma were treated, representing a 32 per cent. activity rate of those examined. It is noteworthy that over half of the active cases were among the pre-school age group.

ANNUAL SALK INJECTIONS SINCE 1st JULY, 1956

| Year | | | | | | | | | | No. of Injections |
|-------|------|------|------|------|------|------|------|------|------|----------------------|
| 1956 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 224,466 |
| 1957 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 415,166 |
| 1958 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 273,017 |
| 1959 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 309,914 |
| 1960 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 140,590 |
| 1961 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 59,964* |
| 1962 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 177,989 |
| 1963 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 203,754 |
| 1964 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 68,641 |
| 1965 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 61,243 |
| 1966 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 77,396 |
| 1967 | .... | .... | .... | .... | .... | .... | .... | .... | .... | 29,215 |
| Total | .... | .... | .... | .... | .... | .... | .... | .... | .... | 2,041,355 |

* Includes 10,134 Quadruple Antigen injections in 1961.

ANALYSIS OF SALK INJECTIONS

1st July, 1956,–31st December, 1967

| Age Group | | | | | | 4th Injection | 3rd Injection | 2nd Injection | 1st Injection | Total Injections |
|-----------------|------|------|------|------|------|---------------|---------------|---------------|---------------|---------------------|
| Under 15 years | .... | .... | .... | .... | .... | 179,226 | 301,764 | 343,882 | 362,401 | 1,187,273 |
| Over 15 years | .... | .... | .... | .... | .... | 119,786 | 222,674 | 238,050 | 263,438 | 843,948 |
| Total, all Ages | .... | .... | .... | .... | .... | 299,012 | 524,438 | 581,932 | 625,839 | 2,031,221 |

In addition to the above total, 10,134 injections of Quadruple Antigen (containing Salk Vaccine) were given in 1961, making the grand total of 2,041,355 separate injections.

SABIN VACCINE ADMINISTERED 1st JUNE, 1967—31st DECEMBER, 1967

| Age Group | | | | | | 1st Dose | 2nd Dose | 3rd Dose | Total |
|-------------------|------|------|------|------|------|----------|----------|----------|---------|
| 0–4 years | .... | .... | .... | .... | .... | 31,269 | 21,634 | 15,203 | 68,106 |
| 5–9 years | .... | .... | .... | .... | .... | 43,654 | 40,807 | 36,179 | 120,640 |
| 10–14 years | .... | .... | .... | .... | .... | 46,453 | 44,451 | 40,369 | 131,273 |
| 15–19 years | .... | .... | .... | .... | .... | 14,523 | 13,231 | 12,071 | 39,825 |
| Total, 0–19 years | .... | .... | .... | .... | .... | 135,899 | 120,123 | 103,822 | 359,844 |
| 20 years and over | .... | .... | .... | .... | .... | 8,274 | 6,278 | 5,154 | 19,706 |
| GRAND TOTAL | .... | .... | .... | .... | .... | 144,173 | 126,401 | 108,976 | 379,550 |

POLIOMYELITIS INCIDENCE

| Case No. | | | | Year | Sex | Age | Virus Type | Vaccination Status | | |
|----------|------|------|------|------|-----|------|------------|--|--|--|
| 1 | .... | .... | .... | 1956 | M. | 24 | .... | Unvaccinated | | |
| 2 | .... | .... | .... | 1956 | M. | 28 | .... | Unvaccinated | | |
| 3 | .... | .... | .... | 1957 | M. | 7 | .... | Unvaccinated | | |
| 4 | .... | .... | .... | 1957 | M. | 10 | .... | Unvaccinated | | |
| 5 | .... | .... | .... | 1957 | M. | 23 | .... | Unvaccinated | | |
| 6 | .... | .... | .... | 1958 | M. | 40 | .... | Unvaccinated | | |
| 7 | .... | .... | .... | 1959 | M. | 2 | III | 3 doses (onset 3 days after third dose) | | |
| 8 | .... | .... | .... | 1959 | M. | 3/12 | .... | Unvaccinated | | |
| 9 | .... | .... | .... | 1959 | M. | 2 | .... | 2 doses | | |
| 10 | .... | .... | .... | 1959 | F. | 3 | .... | 1 dose | | |
| 11 | .... | .... | .... | 1959 | M. | 7 | III | Unvaccinated | | |
| 12 | .... | .... | .... | 1960 | M. | 7/12 | .... | Unvaccinated | | |
| 13 | .... | .... | .... | 1960 | M. | 3 | I | Unvaccinated | | |
| 14 | .... | .... | .... | 1960 | M. | 1½ | I | Unvaccinated | | |
| 15 | .... | .... | .... | 1961 | F. | 2 | I | Unvaccinated | | |
| 16 | .... | .... | .... | 1961 | M. | 3 | III | Unvaccinated | | |
| 17 | .... | .... | .... | 1962 | F. | 41 | I | Unvaccinated | | |
| 18 | .... | .... | .... | 1962 | F. | 3 | III | 3 doses (onset 2 years after third dose) | | |
| 19 | .... | .... | .... | 1962 | F. | 28 | III | Unvaccinated | | |
| 20 | .... | .... | .... | 1962 | M. | 37 | III | Unvaccinated | | |
| 21 | .... | .... | .... | 1963 | M. | 11 | III | Unvaccinated | | |
| 22 | .... | .... | .... | 1963 | F. | 35 | .... | 1 dose | | |
| 23 | .... | .... | .... | 1963 | M. | 2 | III | Unvaccinated | | |
| 24 | .... | .... | .... | 1963 | M. | 5 | II | 4 doses (onset 6 months after fourth dose) | | |
| 25 | .... | .... | .... | 1963 | M. | 26 | II | Unvaccinated | | |
| | | | | 1964 | Nil | .... | .... | .... |  |  |
| | | | | 1965 | Nil | .... | .... | .... |  |  |
| | | | | 1966 | Nil | | | | | |
| | | | | 1967 | Nil | .... | .... | .... |  |  |

TRACHOMA ACTIVITY, 1967

Table 1

| Area | 0-4 Years | | | 5-9 Years | | | 10-14 Years | | | Over 14 Years | | | Total | | |
|--------------------------------|-----------|------|--------|-----------|------|--------|-------------|------|--------|---------------|------|--------|-------|------|--------|
| | Ex. | Act. | % Act. | Ex. | Act. | % Act. | Ex. | Act. | % Act. | Ex. | Act. | % Act. | Ex. | Act. | % Act. |
| Northern Agricultural District | 170 | 90 | 52·9 | 253 | 76 | 30·0 | 198 | 21 | 10·6 | 28 | .... | .... | 649 | 187 | 28·8 |
| Central Agricultural District | 202 | 115 | 56·9 | 212 | 62 | 29·2 | 97 | 7 | 7·2 | .... | .... | .... | 511 | 184 | 36·0 |
| Total | 372 | 205 | 55·1 | 465 | 138 | 29·7 | 295 | 28 | 9·5 | 28 | .... | .... | 1,160 | 371 | 32·0 |

Table 2

| Year | 0-4 Years | | | 5-9 Years | | | 10-14 Years | | | Over 14 Years | | | Total | | |
|------|-----------|-------|--------|-----------|-------|--------|-------------|------|--------|---------------|------|--------|-------|-------|--------|
| | Ex. | Act. | % Act. | Ex. | Act. | % Act. | Ex. | Act. | % Act. | Ex. | Act. | % Act. | Ex. | Act. | % Act. |
| 1962 | 1,422 | 1,159 | 81·5 | 1,728 | 1,194 | 69·1 | 1,209 | 457 | 37·8 | 845 | 146 | 17·3 | 5,204 | 2,956 | 56·8 |
| 1963 | 718 | 493 | 68·7 | 679 | 405 | 59·6 | 414 | 114 | 27·5 | 192 | 15 | 7·8 | 2,003 | 1,027 | 51·3 |
| 1964 | 843 | 542 | 64·3 | 878 | 471 | 53·6 | 674 | 114 | 21·4 | 589 | 15 | 2·5 | 2,983 | 1,172 | 39·3 |
| 1965 | 1,073 | 675 | 62·9 | 1,199 | 534 | 44·5 | 869 | 122 | 14·0 | 113 | 1 | 0·9 | 3,254 | 1,332 | 40·9 |
| 1966 | 922 | 550 | 59·7 | 1,088 | 405 | 37·2 | 785 | 134 | 17·1 | 219 | 3 | 1·4 | 3,014 | 1,092 | 36·2 |
| 1967 | 372 | 205 | 55·1 | 465 | 138 | 29·7 | 295 | 28 | 9·5 | 28 | .... | .... | 1,160 | 371 | 32·0 |

Appendix V

Child Health Services

R. Edmonds, Senior Medical Officer

1. HEALTH CENTRES

Four new buildings were opened in 1967, including two where the Infant Health Centre was combined with a Kindergarten. One was at Embleton and the other at Lynwood.

The increasing problem of supplying services to the periphery of the growing metropolitan area is becoming more manifest each year and a temporary solution was suggested by the Shire of Canning who built a large air-conditioned caravan unit, which could be moved daily from place to place. This unit is still in the experimental stage, but may provide a partial answer to serving the outer suburbs.

Table 1 shows some of the statistics for the last 3 years.

| Table 1 | | | | 1965 | 1966 | 1967 |
|---|------|------|------|---------|---------|---------|
| Birth notifications received (including Correspondence) | .... | .... | .... | 13,853 | 14,904 | 17,199 |
| Births registered | .... | .... | .... | 16,186 | 17,007 | 18,033 |
| Gross attendances | .... | .... | .... | 231,191 | 240,401 | 240,513 |
| Individual attendances | .... | .... | .... | 31,812 | 34,194 | 33,907 |
| Home Visits | .... | .... | .... | 26,482 | 27,312 | 26,400 |
| Telephone consultations | .... | .... | .... | 11,833 | 12,089 | 14,692 |
| Hospital visits | .... | .... | .... | N.R. | 15,860 | 16,463 |

There has been no great change in the figures of gross and individual attendances since last year, but there has been a substantial change in the pattern of ages attending. The gross attendances of children under the age of 1 year has increased by around 4,300. The individuals, under 1 year, has increased about 350 and the total number of new babies seen increased from 14,904 to 15,265. It will be noted also that there was a substantial increase in the number of hospital visits made.

Although there has been a fall off in the pre-school attendances, those over the age of 12 months still represent over one third of the total individuals seen.

2. CORRESPONDENCE

The Correspondence Service was dealt with rather extensively in the last annual report and there seems little point in repeating the details. However, the amount of work occasioned by increase in the number of births, can perhaps be exemplified in the following table.

Table 2
CORRESPONDENCE SECTION

| | | | | 1966 | 1967 |
|------------------------------------|------|------|------|-------|-------|
| Birth Notifications received | .... | .... | .... | 505 | 736 |
| “ New ” Babies | .... | .... | .... | 705 | 874 |
| Total requests for advice received | .... | .... | .... | 6,105 | 7,610 |

These increased figures were partly determined by the number of country centre which were closed down for various periods during 1966, but also represent wha

is probably a significant increase in the number of young children in country areas where there are no Infant Health Sisters available. This is dertermined, as well as by increase in the number of births, by the movement to newer industrial centres in the North. Some relief from the situation will occur in 1968 with the A.I.M. Sisters installed in the Kimberleys, but Pt. Hedland, Mt. Goldsworthy, Mt. Newman, Mt. Tom Price, Dampier and other areas are still loading the Correspondence Service increasingly.

This extra load on the Correspondence Sisters and clerical staff has been reflected in a small reduction in the number of pupils doing correspondence instead of the usual increase. Totals doing correspondence in 1967 were 1,335 as against 1,351 in 1966.

The multitudinous odd jobs which are carried out by the headquarter's staff, which were mentioned in the last annual report, have continued throughout 1967. Mention will be made later of their excellent work with natives around the metropolitan area, particularly at Allawah Grove and East Perth.

3. MOTHERCRAFT AND PARENTCRAFT

All sisters except one engaged in this work in the metropolitan area now have Infant Health Centres of their own to care for, and one Sister is full-time on lecturing to school girls during the day, and to expectant parents, both day and evening classes. This Sister gave 194 lectures to 666 pupils. There were three other Sisters who spent a proportion of their time in the metropolitan area working on parentcraft lectures and, together with Sister Kerr, conducted 342 classes, involving 612 parents. The Parentcraft Sisters gave talks to medical students, to groups—mostly nurses and other students, to Infant Health trainees and others.

A number of Sisters in the country are starting Parentcraft Classes with small groups, but whilst this scheme is still being tried out slowly, no record has been kept of the number of classes conducted.

4. PRE-SCHOOL HEALTH

In Centres

The extra number of infants under the age of one seen in the Centres in 1967 have somewhat reduced the attendance of pre-schoolers at the centres. Table 3 shows the figures for the past five years, 1963-66.

Table 3
NUMBER OF ATTENDANCES OVER THE AGE OF 1 YEAR ATTENDING INFANT HEALTH CENTRES 1963-67

| | 1-2 | Over 2 | Total |
|----------|-------|--------|--------|
| 1963.... | 6,261 | 4,990 | 11,251 |
| 1964.... | 6,856 | 5,172 | 12,028 |
| 1965.... | 6,247 | 4,901 | 11,148 |
| 1966.... | 6,968 | 5,873 | 12,841 |
| 1967.... | 6,390 | 5,542 | 11,932 |

The “ Pre-School Health Scheme ” does not show any great change except a reduction in the number attending for the 5th year check, although there is a significant increase in the number joining the scheme in the first instance.

In the section taken care of by the Pre-School Medical Officer, (Kindergarten examinations) a report from one medical officer in the country was not included because it had not been received. However, despite this, the total shows an increase, mainly in the metropolitan area. This is seen in Table 4. In Kalgoorlie and Boulder a local medical officer examined 155 children. Geraldton area was not done and the Albany area report has not been received.

Table 4
KINDERGARTEN PRE-SCHOOL CENTRES

| | Year | | | | | 1965 | 1966 | 1967 |
|--------------|------|------|------|------|------|-------|-------|-------|
| Total | | | | | | 5,031 | 5,392 | 5,416 |
| Metropolitan | | | | | | 3,301 | 3,839 | 4,077 |
| Country | | | | | | 1,730 | 1,553 | 1,337 |

Dr Roberts included in her report the following :

“ A request was received from Carnarvon kindergarten for a medical examination of the pre-school children. There are ten pre-school centres in the northern part of the State. None of these is visited by the pre-school medical officer. Some of them are visited and are examined by the Infant Health Sisters.

It is not possible to visit all country centres. There are approximately 80 centres in the country in the southern part of the State. Many of them are small play centres meeting on one or two fixed days in the week in hired premises. Some are on native reserves with fluctuation of attendances. These factors and the wide scatter of the centres and the distances between towns make it difficult to organise a complete cover.

Metropolitan Centres

Three new centres opened in 1967. At Embleton a combined Infant Health Clinic and Kindergarten was opened. At Lynwood a kindergarten was established as part of a housing development. At Fremantle a child minding centre was established as part of local council development.

There was an increase in the numbers attending the kindergartens, each kindergarten has now reached approximately its maximum number of children.

The pattern of health of the pre-school child was similar to previous years. There seemed to be a growing awareness of the importance of a healthy primary dentition. Fewer children required dental attention.

Parents and teachers were appreciative of the leaflets published by Health Education. The matter in the leaflets often formed the subject matter for a parent discussion group. Advice was frequently sought on matters of nutrition. To supplement the advice given, the booklet and leaflet material supplied by our nutrition adviser, Mrs Langelaan, was very useful.

As well as the medical examination of the children an important part of our work is with the parents and teachers in health education.”

Each year, in this group, it is noted that some of the children are not immunized against Diphtheria or Poliomyelitis. Percentage has fallen from 1.4 to 1.1 per cent., however, since last year. This figure, in what is generally considered a rather favoured section of the community, demonstrates the continued necessity for health education directed towards immunizations.

5. VITAL STATISTICS

The total number of births in 1967 was 1,026 more than in 1966. The birth rate has also risen slightly (see Table 5.)

| Table 5 | | | | | | | | |
|---------|------|------|------|------|------|-------------------------|---------------|--|
| | Year | | | | | Total Live Births | Birth Rate | |
| 1958 | | | | | | 16,731 | 23·90 | |
| 1963 | | | | | | 17,290 | 22·23 | |
| 1964 | | | | | | 16,685 | 20·93 | |
| 1965 | | | | | | 16,186 | 19·85 | |
| 1966 | | | | | | 17,007 | 20·31 | |
| 1967 | | | | | | 18,023 | 20·55 | |

This suggests that the previously falling birth rate has been arrested. 1967 is the first year in which vital events among full-blood aborigines are included. Statistics for earlier periods remain on the old basis which excludes such events, and they are therefore not strictly comparable with data for 1967.

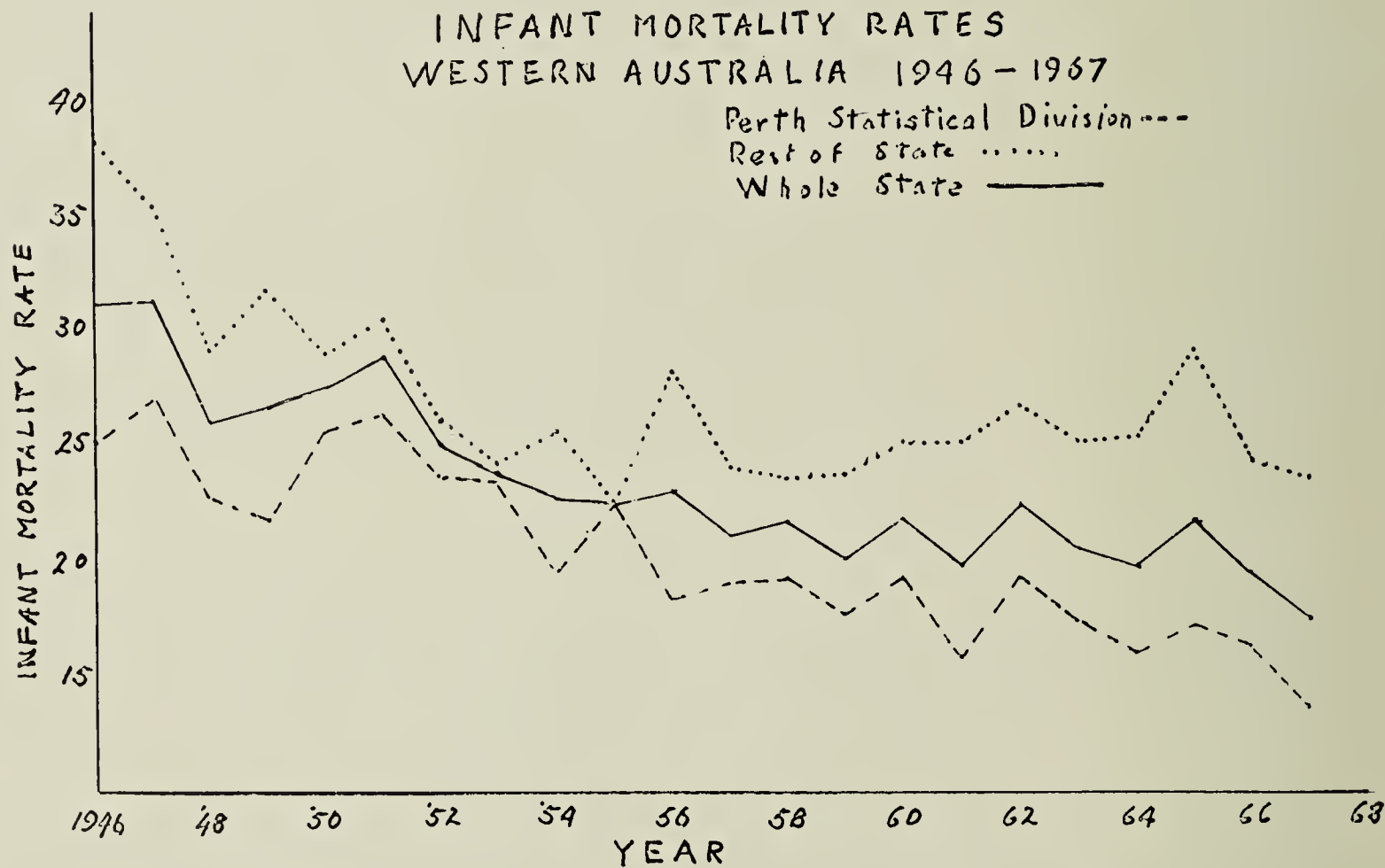
The infant mortality rate for 1967 shows a drop to 17·4 (19·3 for 1966) and this is, up to date, the lowest recorded. Table 6 shows three ten year periods and it appears that after being stationary for some time, the infant mortality rate is significantly falling.

Table 6

| | | 1956-1965 | 1957-1966 | 1958-1967 |
|-----------------------|------|-----------|-----------|-----------|
| Infant Mortality Rate | .... | 21·58 | 20·74 | 20·35 |

Figure I shows graphically the infant mortality rates from 1946 to 1967 for the “ Whole State ”, the “ Perth Statistical Division ” and the “ Rest of State ”.

Fig. 1



This graph is slightly different from those previously published. Changes in the Perth Statistical Division have caused the minor difference in the figures since 1957.

Again the figures for the Perth Statistical Division are very much lower than for the rest of the State and although there has been a fall in the infant mortality rate in the rest of the State, these figures were achieved 10 years ago.

Table 7 shows the actual number of deaths and the infant mortality rate for the Perth Statistical Division, the rest of the State and the whole State for the past 3 years. It must be noted again that full blood natives were excluded until 1967.

Table 7

| Perth Statistical Division | | | Rest of State | | Whole State | |
|----------------------------|--------------|-----------|---------------|-----------|--------------|-----------|
| Year | Total Deaths | I.M. Rate | Total Deaths | I.M. Rate | Total Deaths | I.M. Rate |
| 1965 | 169 | 17·1 | 182 | 29·0 | 351 | 21·7 |
| 1966 | 171 | 16·3 | 158 | 24·1 | 329 | 19·3 |
| 1967 | 148 | 13·6 | 166 | 23·4 | 314 | 17·4 |

It has long been thought that the people who are classified as “ part aboriginal ” might have contributed significantly to this discrepancy between Perth and the rest of the State, but since their deaths are not recorded separately, it has been largely conjecture. It can now be stated, unequivocally for 1967, that this is true. As will be mentioned later, a survey was carried out last year to determine the race of all the children who died under the age of 5. In the infant group (under the age of 1 year) there were 65 who were classified either as full blood or part aboriginal. Of these, 2 were domiciled in the Perth Statistical area, and 63 in the rest of the State.

Therefore the figures for total deaths in 1967 for infants not of aboriginal origin were :—

| | | | |
|------------------------|------|------|-----|
| Perth Statistical Area | .... | .... | 146 |
| Rest of State | .... | .... | 103 |

Since the total births of aboriginal children is not known it is impossible to say precisely what this would have done to the infant mortality rates, but without any doubt it would have brought the “ rest of State ” figure very close indeed to that of the metropolitan area.

While it would be improper to base any long term conclusions on this single year’s survey, it at least gives evidence that the higher death rate in infants in the country is determined mainly by deaths among this group. There is evidence that deaths among natives, both full blood and part aboriginal, was lower in 1967 than is usual. This estimate is being confirmed by the current year’s figures to date.

It seems likely, therefore, that the discrepancy shown so clearly by the 1967 survey is more likely to be an under—rather than an over—estimate of the significance of native deaths in the under 1 group.

Deaths in the 1–4 year group are shown in Table 8.

Table 8
DEATHS 1–4 YEARS

| | | | | | Perth Statistical Division | Rest of State | Whole State |
|----------|------|------|------|------|----------------------------------|---------------------|----------------|
| 1963.... | .... | .... | .... | .... | 26 | 58 | 84 |
| 1964.... | .... | .... | .... | .... | 33 | 47 | 80 |
| 1965.... | .... | .... | .... | .... | 21 | 35 | 56 |
| 1966.... | .... | .... | .... | .... | 27 | 43 | 70 |
| 1967.... | .... | .... | .... | .... | 35 | 40 | 75 |

The difference between the two statistical divisions persists.

Aboriginal deaths in the 1–4 group were 13, 2 metropolitan and 11 other. This leaves 33 Perth and 29 from the rest of the State not aboriginal. Again it appears that the aborigines are contributing more than their share of deaths.

6. THE HEALTH OF NATIVE CHILDREN

As was mentioned last year, several new attacks have been made on the problem of this unfavoured group. The East Perth Centre has shown a considerable increase in attendances since last year, nearly all part-native children. A total of 306 attendances in 1966 is matched by 563 in 1967 and a total of 32 individuals for 1966 rose to 106. It is difficult to estimate the significance of work done in this area, but increased contact must at least have some effect.

It is anticipated that Allawah Grove Native Settlement will be closed by the end of 1968. However, great strides have been made in this place and this has been

reflected in many ways. There has been, for example, a considerable reduction in admissions from the settlement to Princess Margaret Hospital. The sister attending this centre reports, among other points :

Of the 7 babies under 1 year only 1 (with hydrocephalus and a shunt) has been admitted to Princess Margaret and there has been a reduction in the admissions, particularly readmissions of the residents between 1 and 2 years. Mothers buy eggs through the sisters, up to 20 dozen per week, all for cash. Immunizations are up to date. The home treatment of chronic otitis media has been highly successful. No longer do the sisters ferry patients backwards and forwards between the settlement and the hospital out-patients' department. The mothers are now keeping appointments themselves. Pediculosis capitis is being successfully treated. There is generally a great increase in the acceptance of responsibility of the home care for minor illnesses including cuts, sores and diarrhoea. Some support is given to the suggestion that some of these children may be suffering from lactose intolerance in that the older children tend to get more diarrhoea after a visit of the ice-cream vendor or drinking milk in greater quantities than usual. Rewards for picking up broken glass around the settlement had to be ceased, because some of the children became sufficiently sophisticated to break glass deliberately and bring it along for rewards.

It must not be thought, however, that all this has been achieved by the infant health sister alone. A great deal of the credit must go to the management and the workers on the settlement who have co-operated fully. The local doctors and school masters have also been completely co-operative, but above all the really splendid liaison that now exists between our staff and the Princess Margaret Hospital. The Registrar who visits once a week has been particularly helpful in directing home therapy.

The work done by the Australian Inland Mission sister at Fitzroy Crossing has also been continued through 1967 and with more than satisfactory results. A visit by the Senior Medical Officer early in 1968 to this area showed remarkable achievements in one station and the beginning of improvement on one of the local Missions. The work in these areas is hard and exacting. I am more than ever convinced that, to be effective with these primitive people in contact with a changing environment, almost daily contact is necessary, and continued supervision and encouragement of the people essential. This applies to the personnel of the stations, missions and schools as well as to the aborigines.

7. INFANT DEATHS, BY RACE

The infant mortality rate in Western Australia has been higher than the other Australian States. This has been determined by an excessive number of infant deaths in the statistical areas outside the metropolitan one. In fact, the metropolitan infant mortality rates for Western Australia have, for many years, tended to be the lowest in Australia. As mentioned previously, it has been thought that since full blood aborigines until 1967 were excluded from the vital statistics as published, the part natives in the State were contributing to this high infant mortality rate in the "Other areas". However, since births and deaths of part native individuals are not separately distinguished, this has been an assumption.

In order to test this assumption an attempt was made in 1967 to determine the racial origin of every child who died under the age of 5 years. This was all done by personal enquiry about each individual. They were classified, for this purpose, into "full-blood aboriginal", "part-aboriginal", and "not aboriginal". If there was the slightest doubt as to whether or not a child had any significant aboriginal origins it was placed in the last category—"not aboriginal". 313 infant deaths were investigated of the 314 deaths recorded by the Bureau of Census and Statistics.

Owing to the fairly considerable fluctuations from year to year, it was decided that one year's figures were insufficient and the survey is being continued through 1968

and possibly for longer if necessary. However, a statistical evaluation of the 1967 figures indicate that the differences between the aboriginal section and the “not aboriginal” are highly significant.

Table 9 shows the racial distribution of the deaths under the age of 1 year.

Table 9
INFANT DEATHS, 1967 BY RACIAL ORIGIN

| | | | | | | | |
|-----------------------|------|------|------|------|-------|-----|------|
| Not Aboriginal | .... | .... | .... | .... | .... | 248 | 79% |
| Full blood Aboriginal | .... | .... | .... | 42 | 13.5% | 65 | 21% |
| Part Aboriginal | .... | .... | .... | 23 | 7.5% | | |
| | | | | | | 313 | 100% |

The native population (full blood plus part aboriginal) represents approximately 2.5 per cent. of the total population of the State. It will therefore be seen that this 2.5 per cent. of the population accounts for 21 per cent. of the total infant deaths. It should be noted however that this discrepancy is loaded by the probability that the age structure, if known, would show that the natives represent a larger proportion of this age group than the rest. The proportion is not known because the actual birth numbers are not known.

Table 10 shows the comparison between neo-natal and post neo-natal deaths in the same racial grouping.

Table 10

| | | Neo-Natal | | Post Neo-Natal | | Total |
|-----------------------|---------|-----------|---------|----------------|---------|------------|
| Not Aboriginal | .... | 202 | (81.5%) | 46 | (18.5%) | 248 (100%) |
| Full blood Aborigines | 19 | 29 | (44.5%) | 23 | 36 | 65 (100%) |
| Part Aborigines | 10 | | | 13 |  |  | (55.5%) |
| | | <hr/> 231 | | <hr/> 82 | | <hr/> 313 |

Two highly significant points arise from examination of the figures in Table 10.

The first is that the proportion of neo-natal to post neo-natal deaths in the section of the population classified as “not aboriginal” is entirely satisfactory (better than almost anywhere else in the world.) Taken in conjunction with the low infant mortality rate for this year, it shows that for the post neo-natal deaths, we are probably approaching the present irreducible minimum. The post neo-natal proportion of 55.5 per cent. of the total infant deaths among the natives is distressingly bad. If more than 50 per cent. of the deaths take place after the dangerous first four weeks, it demonstrates, without any shadow of doubt, that the total health situation of this section of the community is very bad indeed. It also shows conclusively that, at least for 1967, the generally higher infant mortality rate in this State is mainly determined by deaths in the native population.

The second point demonstrated by this table is that, of the 82 post neo-natal deaths 44 per cent. were contributed to by part aboriginal and full blood aboriginal infants coming from a group which, as a whole, represents 2.5 per cent. approximately of the total population.

It has already been pointed out that nearly all of these deaths took place in children whose homes were outside Perth.

It could be predicted that, if environmental factors were responsible for the excessive number of deaths in this group, infections would rank high in relation to other causes. Since the neo-natal deaths for full and part aborigines represents about 12.5

per cent. of the total neo-natal deaths, only the post neo-natal ones are shown in this table of causes of death. They are divided into four groups—infections, accidents, malformations, and others. They were taken from the death certificates.

Table 11
CAUSES OF POST NEO-NATAL DEATHS W.A., 1967

| | | | | | | Not Aboriginal | Aboriginal (Part and Full Blood) |
|--------------|------|------|------|------|------|-------------------|--|
| Infections | .... | .... | .... | .... | .... | 25 | 32 |
| Accident | .... | .... | .... | .... | .... | 5 | 1 |
| Malformation |  | .... | .... | .... | .... | 14 | 2 |
| Other Causes | .... | .... | .... | .... | .... | 2 | 1 |
| Total | .... | .... | .... | .... | .... | 46 | 36 |

It is not proposed to dissect the survey figures any further for 1967 but to await the results of the continued investigation in 1968. At the moment it appears that the disproportion between neo-natal and post neo-natal deaths among the aboriginal population will be much higher than those observed in 1967. With only approximately half the year's deaths recorded there are already 29 deaths from infections in the post neo-natal aboriginal group as compared with 32 for the whole of 1967. The "not aboriginal" post neo-natal deaths for 1967 was 25 and to date the 1968 figure is 11.

It must be reiterated that the numbers are small and liable to fluctuations from year to year. Clinical observation indicates that, despite recurrent infections in the first year of life and, indeed, well into the second year, the vast majority of these children so infected (mostly with gastro-enteritis or pneumonia) do not die. Throughout the State the medical facilities permit a high degree of sophisticated medical treatment, so what these deaths really represent is a very high morbidity rate. This, entirely apart from the suffering caused to these children and their parents, must represent a high cost in treatment, mainly in country hospitals. As an example of this, in 1967 there were 245 discharges of children under two from the Derby District Hospital classified as having suffered from gastro-enteritis of bacterial origin, with no deaths. This excludes those who were diagnosed as diarrhoea of virus origin.

8. GENERAL

Apart from the special problem of health among native children it appears that the physical health of the young in the community is very good. This is demonstrated by the low infant mortality and in particular by the small proportion of deaths taking place in the post neo-natal period. It is unlikely that marked improvement could be anticipated over the next few years. This is not to say that efforts can or should be relaxed. There was, for example, an increase in the incidence of scurvy in Western Australia in 1967, all among children who did not attend infant health centres. This could have been determined by an increased population being served by the same number of people working the same number of hours per week. As previously mentioned it seems probable that the increased pressure on the centres, particularly in the outer metropolitan area, prevented the sisters from being able to pay home visits to certain problem families as they would have done had the pressure been less.

It was pointed out in last year's report that whatever might be the ideal establishment for sisters in preventive work, the fact has to be faced that there are just not enough replacements of suitable training and type available to take care of resignations and retirement. Over the past four years it has been a stated policy to retire sisters when they reach the age of 60, but three full-time sisters at the moment have passed the retiring age and have been asked to re-join on a year to year basis. Furthermore

we are dependent for part-time temporary relievers to cover vacation leave, sickness etc., and for sisters attending courses. We use throughout the year, about nine of these women, and of these six are retired (and well over 60), two are married and may have to leave at any time, and the third is likely to join the permanent staff later. It is possible that if we were a little less selective or prepared to take on, more or less, anybody with the necessary qualifications on a temporary basis, we could keep most of the posts filled. We feel, however, that our standards are high and we wish to maintain them. These women in the field work almost entirely alone, have to maintain contact with the public and represent the department to the public. The maintenance of good relations with the medical profession, particularly with general practitioners, is also a most important function. It is therefore felt that we should continue to be selective in recruiting.

It is a great disappointment to find a falling off in the attendances of pre-school children in 1967. I am certain that this was entirely determined by the increased number of births and the apparently more urgent need of mothers to attend with children under the age of one. There is still a need for more accurate assessment of physical, emotional, and mental defects or departures from normal in this age group. This was dealt with in some detail in the last annual report, but with the present staffing I am afraid, that for a significant part of the population, this situation will probably continue. Possibly the appointment of another medical officer to do pre-school work may relieve this situation slightly.

During 1967 two additions to the usual procedures were made.

Hearing

Following a visit to New South Wales, where in selected areas attempts are being made to screen all babies for auditory defects at about six months, we have commenced a routine hearing check at or just after 6 months. It is a little early as yet to evaluate this, but we hope that most of the babies in this state will have at least any congenital hearing loss detected much earlier than they were in the past. The importance of recognising the individuals in this rather small group cannot be over emphasized.

Children at Risk

Consideration has been given over the past two years as to whether or not we should establish in this State an "At Risk Register". The literature, particularly from Great Britain, has been carefully examined and the decision was not to establish a central register.

As from September 1967 however, all sisters were instructed in the uniform recording of babies "At Risk". A limited number of criteria culled from the literature was given to them with fairly detailed instructions as to the manner of recording these on the children's cards. This means that as far as the individual is concerned, any known significant risk factors would be prominently recorded. An evaluation of this will be undertaken next year.

Research

Several small research projects were commenced in 1967 and are continuing in 1968.

Little research has been done in native children. Both in the South West of the State, where there are large numbers of part-aboriginal children, and in the North West and the Kimberleys where there are large numbers of full blood natives, there is a rich field for significant research. Significant, not only from the scientific point of view, but research which could yield some of the answers to the very considerable problem of the best way in which to help these depressed groups.

Changing social conditions in this State are making themselves manifest. One which is observed by many of the workers in the field, is evidence of considerable strains on young married people imposed by the high costs of purchasing their own home, furniture, cars etc. This has increased the number of young mothers who feel

compelled to go to work. The problems produced by this are significant and not the least is the unfortunate necessity for child minding centres.

This section of the department has co-operated intimately with the Child Welfare Department in formulating an amendment to the Child Welfare Act and regulations concerning the care and control of these centres.

It has been observed by many sisters in the field that over the past couple of years there has been an increase in the number of unmarried mothers retaining their illegitimate offspring. The figures for ex-nuptial births in this State has been increasing at a considerable rate. Table 12 shows this increase in actual numbers and as a percentage of the total births for each year since 1958.

Ex-nuptial births represent those cases where at the time of registration no statement was made as to the marriage of parents. As for other vital events 1967 ex-nuptial data include for the first time details of such events among full-blood aborigines.

Table 12

BIRTHS

| | | | | | Total | Ex-Nuptial | Per cent. Ex-Nuptial |
|------|------|------|------|------|--------|------------|-------------------------|
| 1958 | .... | .... | .... | .... | 16,731 | 854 | 5·1 |
| 1959 | .... | .... | .... | .... | 17,111 | 904 | 5·3 |
| 1960 | .... | .... | .... | .... | 16,926 | 921 | 5·4 |
| 1961 | .... | .... | .... | .... | 17,078 | 959 | 5·6 |
| 1962 | .... | .... | .... | .... | 17,064 | 1,005 | 5·9 |
| 1963 | .... | .... | .... | .... | 17,290 | 1,229 | 7·1 |
| 1964 | .... | .... | .... | .... | 16,685 | 1,311 | 7·8 |
| 1965 | .... | .... | .... | .... | 16,186 | 1,439 | 8·9 |
| 1966 | .... | .... | .... | .... | 17,007 | 1,607 | 9·4 |
| 1967 | .... | .... | .... | .... | 18,023 | 1,944 | 10·8 |

The increased illegitimate ratio demonstrated in this table occurs elsewhere (e.g. U.K. and U.S.A.) but in this State is significantly higher than for Australia as a whole. Of the other Australian States, only Queensland has a higher ratio.

Conclusion

The service is barely managing to hold its own in the infant field. Expansion in preventive medicine in the pre-school field is desirable. Integration with the schools medical service is long overdue. And there is a great need for more effective work among the native population.

Appendix VI

School Medical Service

Many country schools are now up to date on a two year inspection schedule and all have been examined within three years.

A total number of 56,089 children were examined, of whom 18,909 were in the country. The parents of 10,791 were notified of some defect or other including dental defects, 4,804 were referred for medical attention. Table II shows a good response by the parents in obtaining this medical attention.

A total number of 70,358 children were examined for Pediculosis (Table 3) and the number notified as infected were 364. Re-visits to ensure that effective treatment had been carried out brought the total number of heads inspected up to 98,190.

The general health and nutrition of the children remain good.

Table I

School Medical Service

EXAMINATION OF METROPOLITAN AND COUNTRY SCHOOLS, 1967

| — | Number Ex- amined | Number Notified | Number Referred for Medical Atten- tion | Number Referred for Home Atten- tion and Obser- vation | Number Requir- ing Dental Atten- tion | Skin Complaints | | Nutrition | | | Eyes Medical Atten- tion | Tonsils Medical Atten- tion | |
|----------------------|-------------------------|--------------------|--|---|--|--------------------|--------------|-----------|------------|-----------|-----------------------------------|--------------------------------------|-----|
| | | | | | | Num- ber | Per cent. | 3 | Under 3 | Over 3 | | | |
| Metropolitan Schools | | | | | | | | | | | | | |
| Boys | | 19,057 | 3,635 | 1,424 | 1,013 | 1,261 | 84 | .... | 18,475 | 73 | 436 | 688 | 48 |
| Girls | | 18,123 | 3,022 | 1,198 | 708 | 1,100 | 60 | .... | 17,480 | 105 | 389 | 659 | 30 |
| Total | | 37,180 | 6,657 | 2,622 | 1,721 | 2,361 | 144 | ·39 | 35,955 | 178 | 825 | 1,347 | 78 |
| Country Schools | | | | | | | | | | | | | |
| Boys | | 9,664 | 2,169 | 1,113 | 702 | 545 | 107 | .... | 9,181 | 69 | 233 | 491 | 81 |
| Girls | | 9,245 | 1,965 | 1,069 | 545 | 514 | 87 | .... | 8,863 | 79 | 307 | 522 | 36 |
| Total | | 18,909 | 4,134 | 2,182 | 1,247 | 1,059 | 194 | 1·026 | 18,044 | 148 | 540 | 1,013 | 117 |
| State Total | | | | | | | | | | | | | |
| Boys | | 28,721 | 5,804 | 2,537 | 1,715 | 1,803 | 191 | .... | 27,656 | 132 | 669 | 1,179 | 129 |
| Girls | | 27,368 | 4,987 | 2,267 | 1,253 | 1,614 | 147 | .... | 26,343 | 184 | 696 | 1,181 | 66 |
| Total | | 56,089 | 10,791 | 4,804 | 2,968 | 3,420 | 338 | ·602 | 53,999 | 316 | 1,365 | 2,360 | 195 |

Table II

HOME VISITS BY SCHOOL NURSES

| Total Visits re Medical Attention | Received Attention | Promised Attention | Disinterested | Out or Left District | Visits to Cases Referred for Home Attention | Parents Phoned or Called at Office |
|---|-----------------------|-----------------------|---------------|----------------------------|---|--|
| 2,485 | 1,137 | 641 | 64 | 619 | 120 | 187 |

Table III

HYGIENE INSPECTIONS BY NURSES FOR PEDICULOSIS

| | | | | | | | | | | No. of Children Examined | Number Notified | Percentage |
|--------------|------|------|------|------|------|------|------|------|------|-----------------------------|--------------------|------------|
| Metropolitan | .... | .... | .... | .... | .... | .... | .... | .... | .... | 49,912 | 180 | ·36 |
| Country | .... | .... | .... | .... | .... | .... | .... | .... | .... | 20,446 | 184 | ·90 |
| Total | .... | .... | .... | .... | .... | .... | .... | .... | .... | 70,358 | 364 | ·52 |

Including re-visits to above, a total number of 98,190 heads were examined or re-examined.

Appendix VII

School Dental Service

E. J. Turnbull, Senior Dental Officer

We commenced the year with a staff of fifteen Dental Officers and finished with twelve.

To cope with the rapid expansion taking place in the North-West, and to ease the pressure of work on the Port Hedland Clinic, it was again necessary to send two itinerant Dental Officers to the Pilbarra district.

As no dentist is in private practice north of Geraldton the responsibility of providing an adequate dental service for the entire population in the north and north-west falls on the Schools Dental Service and involved having seven of our staff in the area.

This has depleted somewhat the number of Dental Officers available to conduct the mobile dental clinics in the southern part of the State.

During the year new dental clinics have been established and equipped at Dampier and Tom Price and an excellent service is being provided.

The annual trip along the Trans-Australian Railway Line again took place and for the first time, and with Treasury approval, this was extended to embrace a number of places on the Line in South Australia.

This was done at the request of the South Australian Department of Health and the Good Neighbour Council.

The Senior Dental Officer, and Dental Officer G. Medcalf, were involved with the dental team which conducted a pre-fluoridation assessment survey of some 5,800 school children at Kalgoorlie, Albany and the metropolitan area.

FIGURES FOR THE SCHOOLS DENTAL SERVICE

| | | |
|--|-----------|--------|
| Number of country schools (including North-West) visited | .... | 86 |
| Number of metropolitan schools visited | .... .... | 5 |
| Number of native mission schools visited | .... .... | 13 |
| Number of orphanages and institutions visited | .... .... | 7 |
| Number of children examined | .... .... | 10,272 |
| Number of children treated | .... .... | 6,020 |
| Number of children requiring no treatment | .... .... | 3,723 |
| Number of children to be treated by private dentists | .... .... | 63 |
| Number of children whose parents ignored notices | .... .... | 466 |

Treatments

| | | |
|-------------------------------------|-----------|-------|
| Fillings | .... .... | 9,333 |
| Extractions | .... .... | 4,727 |
| Silver nitrate treatments | .... .... | 82 |
| Prophylaxis | .... .... | 1,127 |
| Orthodontic appliances and dentures | .... .... | 42 |
| Gold inlays | .... .... | 6 |
| Other treatments | .... .... | 2,241 |

NORTH-WEST

The following work was done for the adult population by the seven dental officers in the north. Figures for children are included in "Schools Dental Service" details.

| | | | | | |
|---|------|------|------|------|-----|
| <i>Number of Adult Natives treated free of charge</i> | | | | | 580 |
|---|------|------|------|------|-----|

Treatments

| | | | | | | | | | |
|------------------|------|------|------|------|------|------|------|------|-----|
| Fillings | .... | .... | .... | .... | .... | .... | .... | .... | 142 |
| Extractions | .... | .... | .... | .... | .... | .... | .... | .... | 622 |
| Gold inlays | .... | .... | .... | .... | .... | .... | .... | .... | 8 |
| Dentures | .... | .... | .... | .... | .... | .... | .... | .... | 24 |
| Denture repairs | .... | .... | .... | .... | .... | .... | .... | .... | 11 |
| Prophylaxis | .... | .... | .... | .... | .... | .... | .... | .... | 35 |
| Other treatments | .... | .... | .... | .... | .... | .... | .... | .... | 90 |

| | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|-----|
| <i>Number of Adult Whites treated free of Charge (Pensioners, missionaries, hospital Staff etc.)</i> | | | | | | | | | 267 |
|--|------|------|------|------|------|------|------|------|-----|

Treatments

| | | | | | | | | | | |
|------------------|------|------|------|------|------|------|------|------|------|-----|
| Fillings | .... | .... | .... | .... | .... | .... | .... | .... | .... | 517 |
| Extractions | .... | .... | .... | .... | .... | .... | .... | .... | .... | 199 |
| Gold inlays | .... | .... | .... | .... | .... | .... | .... | .... | .... | 24 |
| Dentures | .... | .... | .... | .... | .... | .... | .... | .... | .... | 81 |
| Denture repairs | .... | .... | .... | .... | .... | .... | .... | .... | .... | 51 |
| Prophylaxis | .... | .... | .... | .... | .... | .... | .... | .... | .... | 138 |
| Other treatments | .... | .... | .... | .... | .... | .... | .... | .... | .... | 131 |

| | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|-------|
| <i>Number of Paying Adult patients</i> | | | | | | | | | 3,162 |
|--|------|------|------|------|------|------|------|------|-------|

Treatments

| | | | | | | | | | | |
|------------------|------|------|------|------|------|------|------|------|------|-------|
| Fillings | .... | .... | .... | .... | .... | .... | .... | .... | .... | 2,737 |
| Extractions | .... | .... | .... | .... | .... | .... | .... | .... | .... | 1,945 |
| Gold inlays | .... | .... | .... | .... | .... | .... | .... | .... | .... | 73 |
| Dentures | .... | .... | .... | .... | .... | .... | .... | .... | .... | 281 |
| Denture repairs | .... | .... | .... | .... | .... | .... | .... | .... | .... | 205 |
| Prophylaxis | .... | .... | .... | .... | .... | .... | .... | .... | .... | 346 |
| Other treatments | .... | .... | .... | .... | .... | .... | .... | .... | .... | 662 |

Total debits raised : \$32,462.65.

Opportunity was again taken to have the Perth Dental Hospital Mobile Clinics treat children on our behalf at places they visited.

Details

| | | | | | | | | |
|-----------------------------|------|------|------|------|------|------|------|-------|
| Number of children examined | | | | | | | | 5,669 |
|-----------------------------|------|------|------|------|------|------|------|-------|

Treatments

| | | | | | | | | | | |
|---------------|------|------|------|------|------|------|------|------|------|-------|
| Fillings | .... | .... | .... | .... | .... | .... | .... | .... | .... | 5,614 |
| Extractions | .... | .... | .... | .... | .... | .... | .... | .... | .... | 926 |
| Miscellaneous | .... | .... | .... | .... | .... | .... | .... | .... | .... | 873 |

Cost of this service at the rate of \$13.00 an hour for the time spent examining and treating children amounted to \$29,193.07.

Appendix VIII

Nursing Section – Operation

By Miss P. F. Lee, Principal Matron

| | | |
|---|------|-----|
| Hospitals Inspected : Metropolitan Area | .... | 185 |
| Country Areas | .... | 45 |

Accompanied by the Department’s Health Inspector, numerous inspections were made of properties being considered for conversion to “ C ” Class requirements. These are not included in the above numbers.

New “ C ” Class Hospitals registered during 1967

| | | | | | | | |
|--|------|------|------|------|------|----|----------|
| Carinya, Bristol Avenue, Bicton | .... | .... | .... | .... | .... | 21 | beds |
| Charles Jenkins, Rowethorpe | .... | .... | .... | .... | .... | 66 | beds |
| Headingly Hospital, 48 Glyde Street, Mosman Park | .... | .... | .... | .... | .... | 16 | beds |
| Mt. Yokine Hospital, 67 Spencer Street, Mt. Yokine | .... | .... | .... | .... | .... | 39 | beds |
| Nazareth House, Bluff Point, Geraldton | .... | .... | .... | .... | .... | 7 | beds |
| Parry House, Grove Road, Lesmurdie | .... | .... | .... | .... | .... | 16 | beds |
| Two Pines, Cnr. Clarkson & Hardy Road, Maylands | .... | .... | .... | .... | .... | 50 | beds |
| | | | | | | | |
| | | | | | | | 215 beds |

Scholarship Awarded for Post-Graduate Study at the College of Nursing, Australia (Melbourne) 1967

Mrs. Beryl Parnell—Nursing Administration Diploma Course.

On successfully completing the Course, Mrs. Parnell returned to Osborne Park Hospital as Deputy Matron.

Emergency Nursing Service

The Emergency Nursing Service continues to prove its worth. Many Hospitals would be forced to restrict their services were experienced Sisters not available to assist in times of severe staff shortage or by taking temporary charge of country hospitals when Matrons are not available. The number of sisters enrolled for this Service remains between 17 and 20.

GOVERNMENT SCHOOL OF NURSING

The Organiser of Nurse Training, Miss E. E. Harler, reports—

General Training

During the year recruitment into general training was as follows :—

| | | | | | |
|---|------|------|------|------|----|
| Kalgoorlie Regional Hospital | .... | .... | .... | .... | 23 |
| Geraldton Regional Hospital | .... | .... | .... | .... | 12 |
| Northam District Hospital... | .... | .... | .... | .... | 10 |
| Transfers from Preliminary Training School to Nursing Aide Course | .... | .... | .... | .... | 1 |
| Transfers from General Training to Nursing Aide Course | | | | | 3 |

Number of students to complete General Training :—

| | | | | | |
|------------------------------------|------|------|------|------|----|
| Kalgoorlie Regional Hospital | .... | .... | .... | .... | 23 |
| Geraldton Regional Hospital | .... | .... | .... | .... | 6 |
| Northam District Hospital | .... | .... | .... | .... | 7 |
| Resignations from General Training | .... | .... | .... | .... | 10 |
| Terminations | .... | .... | .... | .... | 7 |
| Transfer to Royal Perth Hospital | .... | .... | .... | .... | 1 |

Nursing Aide Training

| | | | | | |
|--|------|------|------|------|-----|
| Number of Nursing Aides in Training | .... | .... | .... | .... | 174 |
| Number of Nursing Aides passed Nurses' Registration Board examinations | .... | .... | .... | .... | 141 |
| Terminations | .... | .... | .... | .... | 23 |
| Resignations | .... | .... | .... | .... | 11 |
| Transfer to General Training | .... | .... | .... | .... | 3 |

37

In 1967 pre-clinical instruction was established for all Nursing Aides training in Departmental hospitals.

Pre-clinical schools have been arranged as follows :—

| | | | | |
|----------------------------------|------|------|-----|---|
| <i>Mt. Henry Hospital</i> | .... | .... | for | Mt. Henry Hospital Swan District Hospital Merredin District Hospital |
| <i>Albany Regional Hospital</i> | .... | .... | for | Albany Regional Hospital Narrogin Regional Hospital Katanning District Hospital |
| <i>Bunbury Regional Hospital</i> | .... | .... | for | Bunbury Regional Hospital Collie District Hospital Busselton District Hospital |

Although the number of recruits to Nursing Aide training has increased, many more are needed, as this grade of Nurse provides a stable force in the hospital staffing pattern. The status of the Nursing Aide is improved as she is recognised as an important part of the Nursing force and this has influenced recruitment to a marked degree.

Hospital Staffing

Hospital staffing remains a problem in some areas. The retention of married Nurses, whether General trained or Nursing Aides, eases many staffing situations and many married Nurses are returning to Hospital positions when they find themselves free of family obligations.

Appendix IX

Nurses' Registration Board of Western Australia

R. J. Harrison — Secretary

Registrations

The following table sets out the number of initial registrations/enrolments accepted during the year. 1966 figures are also shown for comparison purposes.

| Division of Register | Number of Registrations Accepted | | | | | |
|---------------------------------|----------------------------------|-------|---------------------------|-------|--------|-------|
| | Qualified by examination in W.A. | | Qualified outside of W.A. | | Totals | |
| | 1966 | 1937 | 1966 | 1967 | 1966 | 1967 |
| General | 281 | 275 | 506 | 530 | 787 | 805 |
| Children's Nurse ..... | ..... | ..... | 5 | 9 | 5 | 9 |
| Mental Health Nurse | 13 | 30 | 20 | 23 | 33 | 53 |
| Midwifery Nurse | 102 | 116 | 241 | 232 | 343 | 348 |
| Mothercraft | 19 | 16 | 7 | 8 | 26 | 24 |
| Dental Nurse | 14 | 31 | ..... | ..... | 14 | 31 |
| Infant Health Nurse | 16 | 18 | 22 | 18 | 38 | 36 |
| Nursing Aide (Enrolments) | 117 | 267 | 49 | 64 | 166 | 331 |
| Totals | 562 | 753 | 850 | 884 | 1,412 | 1,637 |

Of the 530 external registrations (General) accepted by the Board, 274 applieants trained in other States of Australia, 174 from England and Wales, 15 from Scotland ; 17 from New Zealand ; 6 trained in Holland ; 7 trained in India ; 5 in South Africa ; 5 from Ireland ; 4 from U.S.A. ; 3 from Germany ; 4 from Singapore ; 4 from Canada ; 5 from N/Ireland ; and 1 each from France, Denmark, Malaysia, Switzerland, Argentina, Rhodesia and Norway.

Of the 9 external registrations (Children's Nurse) accepted by the Board, seven applicants trained in England, one in Scotland and one in Singapore.

Of the twenty-three external registrations (Mental Health) accepted by the Board, seven applicants trained in other States of Australia, fourteen from England, one from Scotland and one from Germany.

Of the 232 external registrations (Midwifery) accepted by the Board, 138 applicants trained in other States of Australia, 65 from England ; 11 from Scotland ; 4 from New Zealand, 3 from Ireland, 2 from N/Ireland, 3 from India, 3 from South Africa and 1 each from Switzerland, Singapore and Italy.

Of the eight external registrations (Mothercraft) accepted by the Board, seven trained in other States of Australia and one in England.

Of the 22 external registrations (Infant Health) accepted by the Board, 13 applicants trained in other States of Australia, 4 from England and 1 from New Zealand.

Of the 49 external registrations (Nursing Aide) accepted by the Board, 39 transferred from General in Western Australia, 5 trained in other States of Australia, 13 from England, 3 from New Zealand ; 2 from Germany and 1 each from Scotland, Bavaria and India.

Removals and Restorations

The following table sets out the numbers of those persons whose names have been removed from, or restored to, the divisions of the Register, as required under Sections 11 (1) and 11 (3) of the Act, (Non-payment of annual re-registration fees).

Figures for 1966 are shown for comparison purposes.

| Division of Register | Number Removed | | Number Restored | | Affect on Register 1967 | |
|---------------------------|----------------|-------|-----------------|-------|-------------------------|-------|
| | 1966 | 1967 | 1966 | 1967 | Gain | Loss |
| General | 463 | 657 | 270 | 269 | ..... | 388 |
| Children's Nurse | 3 | 1 | 2 | 3 | 2 | ..... |
| Mental Health Nurse | 30 | 31 | 18 | 11 | ..... | 20 |
| Midwifery Nurse | 219 | 249 | 80 | 80 | ..... | 169 |
| Mothercraft Nurse | 17 | 14 | ..... | ..... | ..... | 14 |
| Dental Nurse | 5 | 19 | ..... | ..... | ..... | 19 |
| Infant Health Nurse | 19 | 35 | 14 | 14 | ..... | 21 |
| Nursing Aides | 111 | 192 | 40 | 40 | ..... | 152 |
| Tuberculosis Nurse | 15 | 11 | 3 | 3 | ..... | 8 |
| Totals | 882 | 1,209 | 427 | 420 | 2 | 791 |

Examinations

The Board conducted 22 sets of examinations, involving 817 candidates, as set out in the following table. The number of examiners used to conduct these examinations totalled 149.

| Title | No. of exams | Number Candidates 1st Attempt | | | Number Resits | | |
|----------------------------------|--------------|-------------------------------|------|-------|---------------|-------|-------|
| | | Total | Pass | Fail | Total | Pass | Fail |
| General | 2 | 314 | 286 | 28 | 37 | 31 | 6 |
| Mental Health (Final Exam) | 2 | 27 | 24 | 3 | 3 | 3 | ..... |
| Mental Health (First Year) | 2 | 19 | 18 | 1 | 1 | 1 | ..... |
| Midwifery | 2 | 115 | 115 | ..... | ..... | ..... | ..... |
| Mothercraft | 3 | 16 | 15 | 1 | ..... | ..... | ..... |
| Dental | 2 | 19 | 19 | ..... | ..... | ..... | ..... |
| Infant Health | 3 | 18 | 18 | ..... | ..... | ..... | ..... |
| Nursing Aides | 3 | 244 | 235 | 9 | 6 | 3 | 3 |
| Totals | 19 | 772 | 730 | 42 | 47 | 38 | 9 |

In addition to the above examinations, the Schools of Nursing conducted First Year Assessment Examinations for a further 479 General Nursing Candidates. The Nurses' Registration Board gave overall supervision and issued certificates to those who were successful in passing the First Year Professional Assessment.

Outlines of Other Business

Agreement to change the Regulations to allow the First Year Professional Assessment Examination to be conducted between the Ninth and Fifteenth Months of training at the discretion of the School of Nursing.

Agreement to change the Regulations to enable General Nursing Certificate, Oral examinations to be reserved for :—

- (a) Marginal Fail Candidates.
- (b) To confirm Credit Candidates.

Preparation of a :—

- (a) Syllabus for a Revised Hospital-Based Diploma Course for General Nurses.
- (b) A guide for the new Syllabus.

Addition of Bentley Hospital to the list of Hospitals recognised for provision of supervised practice for Nursing Aides.

Agreement to suggested changes to the Nurses' Registration Act, proposed by the Sub-Committee. Action has been taken to have the changes presented to the Minister.

ANNUAL REPORT OF INTAKE AND WASTAGE OF GENERAL STUDENTS, 1967

| | | Reasons | | | | | Stage of Withdrawal | | | | | Comparative Figures for all levels of Education | | | | |
|----------------|-------------|------------|---------------------|--------|-------------|----------------------|--------------------------------|---------------------|----------------------------|----------------------------|----------|---|--------------|-----------------|---------------------|----------------------|
| Education | Theory Weak | Marr- iage | Failure to Ad- just | Health | Dis- missal | Trans- fer to N/Aide | Trans- fer to other Hosp- ital | All other Rea- sons | Pre. 1st year Assess- ment | Fail 1st year Assess- ment | 2nd Year | 3rd Year | Total Intake | Total Wast- age | Per cent. Wast- age | Per cent. Re- tained |
| | | | | | | | | | | | | | 516 | 167 | 32.35 | 67.65 |
| Leaving | 2 | 20 | 12 | 3 | .... | 3 | .... | 12 | 22 | 3 | 20 | 7 | 157 | 52 | 33 | 67 |
| Failed Leaving | 5 | 4 | 4 | .... | .... | 2 | 1 | 1 | 10 | 3 | 4 | .... | 130 | 17 | 13 | 87 |
| 4th Year | 3 | 4 | 4 | 3 | .... | 5 | .... | 2 | 11 | 1 | 6 | 3 | 69 | 21 | 30 | 70 |
| Junior | 16 | 14 | 14 | 8 | .... | 10 | 3 | 8 | 42 | 12 | 14 | 5 | 147 | 73 | 50 | 50 |
| 3rd Year | .... | 1 | 2 | 1 | .... | .... | .... | .... | 2 | .... | 2 | .... | 13 | 4 | 31 | 69 |

SCHOOLS OF NURSING

| Education | R.P.H. | | Fremantle | | P.M.H. | | Mount | | St. John | | Kalgoorlie | | Geraldton | | Northam | | Sir Charles Gairdner |
|--------------------|--------|-----|-----------|-----|--------|-----|-------|-----|----------|-----|------------|-----|-----------|-----|---------|-----|----------------------|
| | IN. | W. | IN. | W. | IN. | W. | IN. | W. | IN. | W. | IN. | W. | IN. | W. | IN. | W. | |
| Leaving | 46 | 23 | 32 | 9 | 23 | 6 | 2 | ... | 8 | 3 | 1 | 4 | 1 | ... | 2 | ... | 5 |
| Failed Leaving | 40 | 7 | 19 | 1 | 20 | 3 | 2 | ... | 10 | ... | 3 | 1 | ... | ... | 1 | ... | 5 |
| 4th Year | 34 | 10 | 11 | 7 | 6 | 2 | 2 | ... | 7 | 1 | 5 | ... | 1 | ... | ... | ... | ... |
| Junior | 44 | 25 | 30 | 19 | 17 | 6 | 8 | ... | 10 | 5 | 15 | 5 | ... | ... | 8 | 4 | 1 |
| 3rd Year | 6 | 3 | 1 | ... | ... | ... | ... | ... | 4 | ... | ... | 1 | ... | ... | 2 | ... | ... |
| Totals— | 170 | 68 | 93 | 36 | 65 | 17 | 14 | 5 | 39 | 9 | 24 | 11 | 22 | 5 | 13 | 4 | 11 |
| Per cent. wastage | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Per cent. retained | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

Prepared from Records of Incomplete Training Forms submitted to the Nurses' Registration Board.

Appendix X

Division of Occupational Health

D. D. Letham, Physican in Charge

THE PNEUMOCONIOSES
MINING INDUSTRY

Medical Examination

A total of 5,301 men were examined under the relevant Mining Acts by the Mines Medical Officer. Among the active miners, there were 336 men suffering from silicosis (22 new cases), 21 from asbestosis complicated by silicosis (8 new cases), and there were four new cases of tuberculosis.

Pneumoconiosis Medical Board

A total of 320 men were referred for assessment of disability due to pneumoconiosis. There were 187 new claims and of these 109 (58.5 per cent.) were successful. An analysis and comparison of the Board's findings since its inception, taken from the Chairman's Annual Report, is as follows :—

ANALYSIS OF SUCCESSFUL CLAIMS 1965—1967

| Year | Total | Diagnosis | | | |
|-----------|-------|-----------|-----------|--|-----------|
| | | Silicosis | | Asbestosis (with or without silicosis) | |
| | | Number | Per cent. | Number | Per cent. |
| 1965..... | 248 | 240 | 97.4 | 8 | 2.6 |
| 1966..... | 281 | 261 | 94.5 | 20 | 5.5 |
| 1967..... | 233 | 202 | 86.7 | 31 | 13.3 |

Of these totals in these years, 26 (10.4 per cent.), 45 (16 per cent.) and 55 (23.6 per cent.) men respectively were also significantly disabled by chronic bronchitis.

Silicosis is obviously still a problem in the gold mining industry. Modern dust sampling techniques must be introduced and comprehensive surveys carried out so as to concentrate dust suppressive measures and ventilation where most needed. New cases of asbestosis will continue to appear, despite the closure of the mine at Wittenoom. The history of disease and death associated with the mining and milling of blue asbestos does not encourage any hope that safe mining and milling of the mineral would be an economic proposition.

Nickel

Nickel mining and concentration processes were inspected at Kambalda. Silicosis is unlikely to be a problem in these mines, but dust concentrations must be kept at low level to prevent the development of nickel itch or sensitization dermatitis which, once developed, may force a miner out of the industry.

Manganese

Manganese mining was also inspected. The inhalation of manganese dust can cause bronchitis, chemical pneumonia and a serious mental disease similar to Parkinsonism. The mining, crushing, carting and shiploading of manganese is very dusty, but there is a very high labour turnover and it is unlikely that anyone stays long enough to develop disease. However, dust concentrations must be kept at a low level and the health of the men protected from a serious potential hazard.

With notable exceptions, men working in the iron ore industry are exposed to excessively high atmospheric concentrations of fine iron dust. Pure iron ore dust is considered to be inert, but very little is known of the long term effects of exposure to high concentrations. It may cause chest X-ray changes similar to silicosis, but without comparable disability, and whether it will produce localized disease, like bronchitis, is unknown.

OTHER DUSTY OCCUPATIONS

Regular medical supervision of men in other dusty trades was continued and over six hundred men were X-rayed. There were three new cases of asbestosis in the asbestos-cement industry—one in a pipe lagger—one new case of silicosis in a foundry-man and one employed in the manufacture of pipes and tiles. Sandblasting continues to be a serious health hazard and an air pollution problem. Much of this work appears to be done in circumstances outside the scope of the Factories Act; hence the Abrasive Blasting Regulations are not operative. Despite constant supervision and inspection, the work is still carried on in a very hazardous manner, and it is difficult to see how silicosis can be avoided. The air supply to the sandblaster is frequently foul and contains oil droplets, the consequences of which to a sensitised bronchial mucosa cannot be estimated. Air filters are usually inadequate and it is doubtful if air from industrial compressors can ever conform to the Standards Association Code. The use of abrasive blasting material containing more than 5 per cent. free silica (SiO_2) should be prohibited.

A survey of a number of premises specialising in brake and clutch maintenance work was carried out and concentrations of dusts and air were measured and analysed. Although the work was dusty, the asbestos content of the dust was generally very low.

NOISE

HEARING CONSERVATION PROGRAMME

A number of new industries have been investigated and the previous programmes continued in the Metropolitan and Goldfield areas. The miners' interest has been maintained and a large number of men wear ear protection. More modern mining methods and machinery at Mt. Charlotte and Kambalda have produced noise levels higher than the average in the industry, and in many instances ear muffs have been recommended and are being worn.

The following is a list of the places visited and the number of persons tested and fitted during the year :—

| | Audiograms | Ear Plugs |
|--|------------|-----------|
| North-West Cape—U.S.N. Communications Sta- tion | 34 | 34 |
| Ravensthorpe Copper Mine | 47 | 26 |
| Kalgoorlie Mines | 457 | 190 |
| Midland Abattoirs, Health Inspectors | 29 | 28 |
| Finger Jointers Pty. Ltd., Forrestfield | 19 | 16 |
| Osborne Park Timber & Trading Co. Pty. Ltd. | 14 | 5 |
| Blind School, Maylands—Wicker Work | 9 | 2 |
| Reserve Bank—Coin counting machine | 9 | 9 |
| Metal Manufacturers (W.A.) Pty. Ltd., O'Connor— Cables | 9 | 9 |
| Vinindex Pty. Ltd., O'Connor—Plastics | 2 | Muffs |
| Moran H. & Co.—Wrought Iron, | 1 | 1 |
| Wembley Technical School—Apprentice boiler- makers | 23 | 13 |
| School boy, repeat audiograms | 146 | .... |
| Total | 799 | 334 |

In addition to these, 146 visits in all were made by the Sister on initial enquiries and follow-up visits.

The findings of significant hearing loss in a percentage of young people at school and in industry prompted an attempt to commence hearing conservation at an early stage of apprenticeship. A film was shown, a lecture given, ears examined, tested and ear plugs fitted at a technical school.

During the year there was a report of possible hearing damage from a toy Sonic Blaster Bazooka. Noise levels were estimated to be well above hearing conservation levels. Because of the danger to children's hearing if the toy were fired close to the ear, wholesale toy dealers co-operated fully in banning the toy; all the toys were seized and destroyed under supervision.

DERMATITIS

Although 27 notifications were made to the Department, the Commonwealth Statistician reported over 300 lost time instances during 1967 due to industrial dermatitis. Dermatitis appears to be widespread throughout industry, although frequently only one person is affected in a particular factory. There was an exception at a plastics factory where a number of employees were affected by a chemically treated fibreglass. In a wool scouring works, four men developed fairly severe arsenical dermatitis. General hygiene was not good and the arsenic solution used to treat the skin had been allowed gradually to become over-concentrated.

Following a complaint by the Meat Employees' Union that multiple warts were very prevalent on the hands and forearms of slaughtermen, a survey was conducted in a number of abattoirs. This survey suggested that nearly 50 per cent. of the slaughtermen have or have had warts on their hands or forearms since commencing abattoir work and that this very greatly exceeds the prevalence in the general adult population.

PESTICIDES AND FUMIGANTS

Fumigation

During the year fewer ships were fumigated because of a higher standard of cleanliness in the vessels carrying grain. Five ships only were fumigated with methyl bromide. This work was supervised and clearance certificates issued to allow crew and workmen to board.

Commercial fumigators and flour mills, dried fruit premises and nurseries were also inspected and supervised. Supervision was continued over commercial pest control firms, fruit fly sprayers and others engaged in pest control work, and recommendations made in respect of protective clothing and safe practice where considered necessary. A number of routine cholinesterase tests were done and a few urinary arsenic and H.E.O.D. levels estimated. These tests, apart from urinary arsenic levels in employees of the wool scouring company using an excessively strong arsenical mix, were within normal limits.

Aerial Spraying—Ord River

Because of the high toxicity and high concentration organo-phosphorus and organo-chlorines used in this area the District Medical Officer carried out a number of cholinesterase estimations on exposed personnel. Two men mixing chemicals had levels considerably below normal and one of these was suspended from mixing pesticides for two weeks. Medical control of these pesticides operators has been difficult and the co-operation of the men themselves reluctant. Medical examinations of personnel exposed to highly toxic chemicals in high concentrations should be mandatory.

GASES AND VAPOURS

Isocyanates

All premises making polyurethane products were visited. A number of men were affected by isocyanates in a motor body building works. Although M.D.I.* was being used, the fine particulate spray was widely disseminated throughout the

*M.D.I.—Diphenylmethane.

works. Following tests for atmospheric concentrations, alternative safer working conditions were recommended to the management. In addition to the cases previously reported, a man making paper rollers, using T.D.I.,† developed a severe acute chest illness and substantial, structural and procedural changes had to be introduced.

†T.D.I.—Toluene di-isocyanate.

P.T.F.E.

Polymer fever was found in a technician using Poly tetra fluoro ethylene (P.T.F.E.) spray applied on to moulds as a release agent. He was in the habit of rolling his own cigarettes at work and introduced P.T.F.E. into the tobacco with contaminated hands and inhaled the toxic products on combustion.

COMMERCIAL UNDERWATER DIVING

Two incidents involving accidents to men employed to work under water were investigated. The investigation revealed serious shortcomings in regard to the training of divers and attendants, equipment, health, standards, availability of recompression chambers, codes of safe practice, etc. The volume of this type of work is increasing and regulations to ensure safe practices may be needed. All vendors of compressed air for SCUBA divers were visited and a number of hookah units inspected. The quality of the air supply was tested and advice given where appropriate.

METALS

Lead

Seventy-six men working with lead had medical examinations during the year. A man engaged in the manufacture of P.V.C. pipes exposed to lead stearate and lead carbonate dust developed lead poisoning. It first proved difficult to improve working conditions but a work practice routine was introduced so that all the handling of lead could be done under efficient exhaust ventilation ; this seems to have removed the hazard. Despite regular inspection and medical supervision, two more lead battery breakers, for salvage, developed lead poisoning after only three to four weeks' exposure. The nature of the work and primitive working conditions are difficult to keep consistently safe. Tests show that simply pulling batteries down from the stock pile produced atmospheric lead levels of 7.2 mgm/m³ (M.A.C. for lead is 0.2 mgm/m³) in the breathing zone of the breaker. During the actual breaking of the batteries 0.72 mgm/m³ when the bottles were fairly wet rising to 2.75 mgm/m³ with drier conditions. Safe salvage can obviously only be done in excellent working conditions and assistance was given to the Department of Labour in the preparation of regulations to this end.

SPRAINS AND STRAINS

KINETICS

In the first half of the year Mr. D. J. Kemp, still working for the Division one week each month, completed the programme of instruction in kinetic lifting in departmental and board hospitals, all of which have now been visited. In July he submitted a detailed report which makes clear the limitations of manual lifting and moving of patients and the need to develop mechanical aids.

On the 1st August, he was appointed full-time Kineticist to the Division. He established courses in kinetic lifting for trainee nurses at the Government School

of Nursing, and for trainee nursing aides at Mt. Henry Hospital. Over a period of four months, a concentrated effort was made to improve the lifting pattern of the staff at Mt. Henry and Sunset Hospitals. He produced short films as visual aids to this programme.

The Medical Department, recognising the value of reducing strain in nurses by mechanical aids, made a grant of \$1,000 towards producing a special wheel-chair. This is being specially designed to eliminate excessive weight bearing by nurses in the movement of dependent patients. It is anticipated that further mechanical aids will be developed within this Division.

AIR POLLUTION

Scientific Advisory Committee

Of the eleven meetings during the year, eight were held after the 2nd June when the Clean Air Act became effective.

The Committee recommended to the Air Pollution Control Council that 77 applications for licences for scheduled premises be granted.

Much of the time of the committee was taken in the consideration of new premises, of which there were three ; and of conditions for licences for old premises. There were ten of these, eight of the premises concerned having been the subject of complaints of air pollution.

Complaints

Most complaints were of :—

Dust from a quarry, a cement works, a plywood factory.

Irritating emissions from oil fired boilers, a galvanising plant, a fertilizer works.

Odours from a plywood factory.

All of the premises which are subjects of these complaints have been required by the Council to exercise control by specified means over the air pollutants which are the sources of complaint. Sandblasting as a source of public complaint is also being investigated.

Port Hedland

Large quantities of ore have been stored and loaded on to ships at Port Hedland by a Company mining iron ore. This operation was well established before the 2nd June, when the Clean Air Act became effective. By this time, Port Hedland had experienced gross pollution of the air with iron ore dust which settled in dwellings throughout the town. The Company is now taking steps to comply with the provisions of the Clean Air Act.

Enquiries

Over one hundred enquiries, and requests for advice, on technical aspects of air pollution were received during the year.

Staff

The volume of technical work involved in the control of air pollution is increasing rapidly ; this has followed the proclamation of the Act. As well, and more significant, is the rapid development of new industry in the State. There is an immediate need for another professional officer to assist the Engineer, Clean Air.

EDUCATION

Officers of the Division gave lectures and addresses as follows to :—

- Medical graduates
- Fifth year under-graduates
- Trained nursing staff
- Trainee nursing staff
- Health inspectors
- Factory inspectors
- Farmers (including State and National broadcasts)
- Safety engineers

and at the :—

- Institute of Technology

SUMMARY

Rapid development of mining in the north of the State has resulted in exposure of workers, and the general population, to dust from a variety of mineral ores. Experience in Port Hedland indicates that, apart from the possible health hazard to workers, these dusts can constitute a major problem of air pollution control.

Sandblasting around Perth has been increasing with, in some cases, little regard to the occupational hazard of silicosis ; as well, it is a source of general air pollution.

Poor appreciation of the health hazards involved in aerial spraying in the Ord River area is of considerable concern because of the high toxicity of some of the pesticides used.

It is evident that without statutory control, industries large or small could still develop in this age observing standards of public health which belong to one bygone.

Appendix XI

Technical Information Service and Library

J. F. Woolcott, M. B., Ch. B.

The year 1967 for the Library was marked by one outstanding feature—shortage of staff. It was noted in the 1966 report that at the end of that year no replacement had been obtained for Miss McGuire. This state of affairs held until April, 1967 when a temporary assistant, Mrs Jean Bigsby, was appointed. In spite of repeated advertising no senior experienced qualified applicants came forward.

The statistics for the year, given below with those for the four preceding years show about the same number of non-journal publications received. The bulk of these (70 per cent.) were for the main P.H.D. Library which meant finding shelf space for 580 new publications. Of the remainder, 92 were for various hospitals, 45 for Child Health Services, 45 for the Public Health Laboratories, 27 for the State X-ray Laboratory, 13 for the Government School of Nursing, 7 for the Nurses' Registration Board and the remainder for 9 other small libraries.

The 40 new journals, giving a total of almost 600 received, exemplify the continuing rapid expansion in the technical publishing fields with which the library is concerned. To be adding new journals at the rate of almost one a week indicates a rapid growth rate indeed and coupled with the 12.7 per cent. increase in routine circulation of journals shows the increased and increasing work-load the library carries.

The Medical Library of W.A. was once again the main source from which this library borrowed and the close and friendly co-operation between the two libraries is a pleasure to record.

Fremantle Hospital and Hollywood Repatriation General Hospital continue to be the biggest institutional borrowers from the P.H.D. Library. In 1967 Fremantle borrowed 134 items (133 in 1966) while Hollywood jumped from 85 in 1966 to 112 in 1967. There were, including these two, five libraries who borrowed more than 50 items during the year, and nine libraries who borrowed between 10 and 50 items. The figures show a steady rise in the total number of institutions borrowing from the P.H.D. Library.

During 1967 the number of people actually using library premises for reading and studying library material increased noticeably. No actual figures are available to indicate this nor are there statistics kept to indicate another expanding figure. This is the number of requests received for reference material either in terms of specific references (with details of author, journal, year, volume number, pagination, etc.)

| Items | 1963 | 1964 | 1965 | 1966 | 1967 |
|---|-------|-------|-------|-------|-------|
| <i>General—</i> | | | | | |
| Non-journal publications received | 856 | 727 | 753 | 882 | 826 |
| Additional journals received | 24 | 54 | 39 | 30 | 40 |
| Total journal titles received | 449 | 503 | 542 | 572* | 596 |
| Average monthly journal routing | 674 | 850 | 1,145 | 1,161 | 1,309 |
| <i>Borrowing (excludes routine journals)—</i> | | | | | |
| From all other libraries | 474 | 340 | 437 | 299 | 262† |
| From W.A. Libraries | 429 | 280 | 407 | 283 | 245 |
| From Medical Library of W.A. | 310 | 179 | 232 | 169 | 127 |
| From Libraries outside W.A. | 45 | 60 | 30 | 16 | 17 |
| <i>Lending (excludes routine journals)—</i> | | | | | |
| All external loans | 289 | 339 | 720 | 837 | 722 |
| To Medical Library of W.A. | 41 | 42 | 117 | 111 | 90 |
| Number of organisations to which loans made | 24 | 24 | 43 | 54 | 56 |
| Loans made outside W.A. | N/A | 22 | 67 | 59 | 31 |
| Photocopies supplied | 1,662 | 2,965 | 1,127 | 1,610 | 1,680 |

* Includes 16 journals in process of transfer to Mental Health Services Library.
† In addition 60 photocopies, xerox copies, etc., were received, 57 from outside W.A. and 3 from sources within the state.

or in more general terms such as a request for information on a general topic. Attempts are being made to get some figures on the volume of these information enquiries.

In 1965 when the Library moved into its present premises it was a great disappointment that the architects had not taken the advice given them about spacing of library shelving and had installed the shelves far too far apart thus wasting a considerable amount of floor space and limiting severely and unnecessarily the total footage of shelving available. What was expected to be adequate library space for 8 to 10 years seems likely because of this space wastage to cause problems in 1969 after only four years.

Undoubtedly the most interesting development of the year arose out of a report in the Medical Journal of Australia. In the August 12th issue under the heading "Medical Aid to Indonesia" the journal noted that medical schools in that country were having great difficulty in purchasing or obtaining basic medical journals and appealed to Australian libraries to help where they could. Because of the wide geographical dispersion of the units comprising the Public Health Department and the extensive dependence of technical officers on routine circulation of journals, the P.H.D. Library has to subscribe to multiple copies of several basic journals. Once routine circulation has finished only one copy is needed for storage and reference purposes so the library has spare duplicates. The availability of these was made known by correspondence with the Dean of the Faculty of Medicine of the University of Indonesia in Djarkarta. Departmental approval was obtained once the Dean had specified the journals that were needed and, commencing in 1967 this library has been sending regularly spare and unwanted copies of the British Medical Journal, the Bulletin of Hygiene and the Journal of Pathology and Bacteriology. This international gesture of goodwill is something this library is proud to be associated with.

Indeed, goodwill and co-operation between libraries locally is at a very high level and the co-operation and help received from a large number of libraries throughout Australia as a whole is warmly acknowledged.

Appendix XII

State X-Ray Laboratory

B. E. King, Physicist in Charge, Physics Division

INTRODUCTION

The State X-ray Laboratory consists of a Medical Physics and an Engineering Division. This report is concerned with the Medical Physics Division, which is responsible to the Radiological Advisory Council for the administration of the Radioactive Substances Act and for the provision of Radiation Protection and Medical Physics Services.

RADIOACTIVE SUBSTANCES ACT

Under the Radioactive Substances Act, radioactive substances may only be used by licenced persons. X-ray apparatus used by dentists or medical practitioners for radiography is required to be registered, but its use is exempt from licencing. Users of fluoroscopic or any other X-ray apparatus must be licenced. The Radiological Advisory Council advises the Minister for Health on the granting of licences and registration. The Council is assisted by a number of sub-committees which are listed below. The members of the Council are :

Dr D. D. Letham (Chairman)
Professor C. J. B. Clews
Professor W. J. Simmonds
Professor D. J. Allen-Williams
Mr R. M. Hillman
Dr P. Breidahl

Meetings of the Council and its sub-committees held during 1967 were as follows:

| | | | | | | |
|--|------|------|------|------|------|---|
| Radiological Advisory Council | .... | .... | .... | .... | .... | 4 |
| Medical Advisory Sub-committee | .... | .... | .... | .... | .... | 4 |
| Dental Advisory Sub-Committee | .... | .... | .... | .... | .... | 0 |
| Training and Instruction Sub-Committee |  |  | .... | .... | .... | 1 |

Laboratory personnel are appointed as Secretaries to the above bodies, and the Laboratory provides the technical and administrative facilities for the implementation of the Act.

Licences, once granted, must be renewed annually. Registration continues until cancelled by the Minister. In 1965, the Council adopted minimum standards which equipment must meet if it is to be considered for registration. There are separate standards for medical and dental installations.

Particulars of Licences and Registration

Licences—

| | | | | | | |
|---|------|------|------|------|------|-----|
| Licences current at 31/12/67 | .... | .... | .... | .... | .... | 174 |
| New licence applications received during 1967 |  |  |  | .... | .... | 20 |
| New licences granted during 1967— | | | | | | |
| (a) Medical | .... | .... | .... | .... | .... | 3 |
| (b) Non-Medical | .... | .... | .... | .... | .... | 12 |
| Licences terminated 1967 | .... | .... | .... | .... | .... | 5 |

Registrations—

Registrations Approved during 1967—

| | | | | | | | | |
|--|------|------|------|------|------|------|------|-----|
| (a) Medical | .... | .... | .... | .... | .... | .... | .... | 9 |
| (b) Dental | .... | .... | .... | .... | .... | .... | .... | 33 |
| Total Registrations current on 31/12/67— | | | | | | | | |
| (a) Medical | .... | .... | .... | .... | .... | .... | .... | 38 |
| (b) Dental | .... | .... | .... | .... | .... | .... | .... | 158 |

Training of Industrial Radiographers

During 1967, the Council initiated a system of approval of Industrial Radiographers who carry out gamma-radiography at field sites away from their licenced premises. Radiographers who could not satisfy the Council that they had an adequate knowledge of radiation safety, gained either through long experience or by training, were required to enrol in a course which was organised with the co-operation of the W.A. Institute of Technology. Those who completed the course satisfactorily were awarded a certificate by the Institute, and were granted approval by the Council. Ten completed the 1967 course and received a certificate. A further course is to be held in 1968.

Training of Maintenance Technicians and Engineers

There have been a number of incidents coming to the notice of Council in recent years in which workers concerned with installation and maintenance of X-ray equipment and equipment incorporating radioactive substances have been exposed to large doses of radiation. The Council was aware of the lack of knowledge of Radiation Safety of many of the persons engaged in these occupations and decided that courses of training should be provided. This is being discussed with the Institute of Technology and it is expected that the first course will be held in 1968.

CODES OF PRACTICE

The following codes of practice and publications issued by the National Health & Medical Research Council are distributed by the Laboratory to Licencees and Registrants :

Radiation Protection Standards
 Code of Practice for the Use of Ionizing Radiation in Secondary Schools
 Code of Practice for the Control and Safe Handling of Sealed Radioactive Sources used in Radiation Therapy
 Code of Practice for Nursing Staff Exposed to Ionizing Radiations from Radioactive Substances
 Safe Handling of Corpses Containing Radioactive Substances.

LABORATORY SERVICES

Film Badge Monitoring Service

The Regulations require that all persons who may be exposed to radiation must use some form of personnel monitoring. The Film Badge Service conducted by the Laboratory was established eleven years ago and is used by the majority of radiation workers in the State.

In 1967, 12,792 monitoring films were processed and the doses evaluated. The number of persons monitored at 31st December, was 1,060, an increase of 20 per cent. over the figure for 1966. This number was made up as follows :

Number of Persons Monitored—

| | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|
| Medical, Hospitals | .... | .... | .... | .... | .... | .... | .... | 226 |
| Medical, General Practitioners | .... | .... | .... | .... | .... | .... | .... | 88 |
| Medical, Radiologists and Miscellaneous | .... | .... | .... | .... | .... | .... | .... | 77 |
| Chiropractors | .... | .... | .... | .... | .... | .... | .... | 9 |
| Dental | .... | .... | .... | .... | .... | .... | .... | 497 |
| Non-Medical | .... | .... | .... | .... | .... | .... | .... | 163 |

The trend in the number of monitoring films processed and the number of persons monitored is shown in Figure 1.

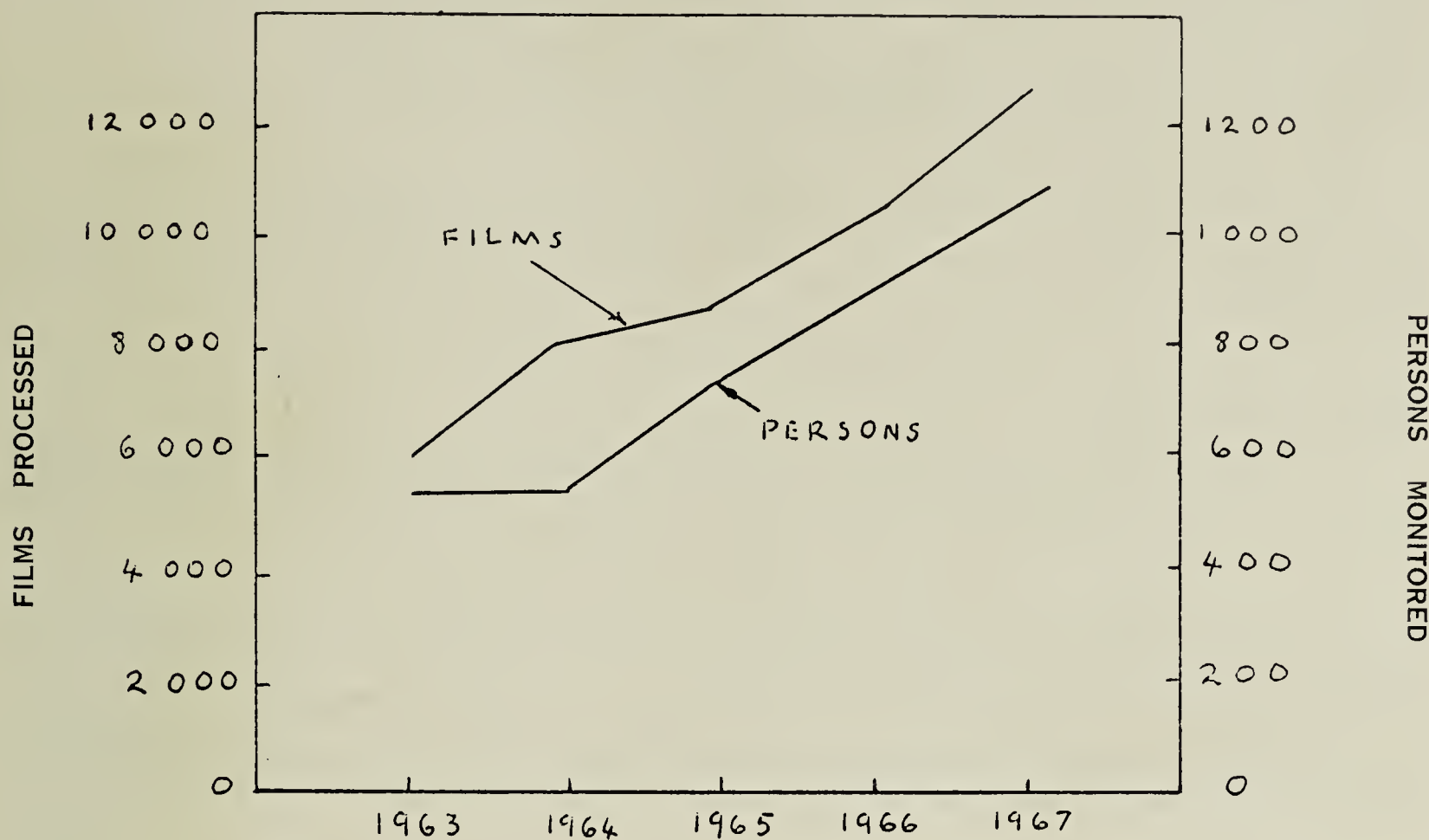


FIGURE 1.

The majority of films are worn for a period of four weeks. Where higher dose levels are anticipated periods of one or two weeks are required.

Following an enquiry received from a user of the film badge service, the Council decided that, in conformity with international recommendations, individual exposure records shall be kept for 30 years after the last entry. As difficulties were already being encountered in maintaining the exposure records at the Laboratory and in storing the increasing volume of paper which constituted them, investigations were begun into the feasibility of using a microfilm system. At an early stage it was apparent that such a system would improve the accessibility of the data, increase accuracy, reduce staff commitment, and greatly reduce record storage space. Accordingly, it is intended to introduce the system in 1968.

Inspection Services

There is a continuing programme of inspection of installations of new applicants for licences and registration and of re-inspection of those already licensed or registered. The purpose of an inspection is to ensure compliance with the Act, Regulations and the Council's Standards. Reports of inspections are submitted to the Council and where appropriate, recommendations made for correction of defects.

Inspections, 1967

| | | | | | | | | |
|----------------------------------|------|------|------|------|------|------|------|----|
| Dental | .... | .... | .... | .... | .... | .... | .... | 66 |
| Medical | .... | .... | .... | .... | .... | .... | .... | 57 |
| Veterinarians | .... | .... | .... | .... | .... | .... | .... | 9 |
| Chiropractors | .... | .... | .... | .... | .... | .... | .... | 5 |
| Industrial and other non-medical | .... | .... | .... | .... | .... | .... | .... | 32 |

A number of inspections which could not readily be classified were also carried out. These included inspection of packages at the Customs Department and inspection of various types of Industrial apparatus and Medical and Dental X-ray equipment at the Laboratory.

Technical Information and Radiation Protection

Frequent requests for advice on radiation hazards, design of protective equipment, applications of radioactive substances and X-rays are dealt with at the Laboratory. The design of radiation protection for new or altered medical X-ray facilities is undertaken regularly.

Radiation Standards

The Laboratory's sub-standard X-ray dosimeter is used for the calibration of radiation measuring equipment and for the calibration of superficial therapy X-ray equipment. Five of the latter calibrations were carried out during 1967.

The Laboratory maintains a number of calibrated radioactive sources which are used for the calibration of (1) equipment used for measurement of radioactivity and (2) survey equipment and monitoring films.

The number of calibrations of monitoring and survey equipment will increase sharply in 1968 as the Radiological Advisory Council now requires radiation monitoring survey instruments etc., to be calibrated at regular intervals.

Radiation Monitoring Equipment

The laboratory is equipped with a range of monitoring and survey instruments for the field measurement of α , β and γ radiation.

Measurement of Radioactivity

Measurements of radioactivity in the environment were suspended in the latter part of 1967 due to the commencement of building additions. Measurements are expected to resume in 1968.

Radiation in the Environment

There are a number of sources of radiation of natural origins to which man is exposed :

1. Cosmic radiation
2. Gamma radiation from radioactive substances occurring naturally in the environment.

These result in external radiation, but internal radiation also results from the ingestion of foodstuffs and water containing naturally occurring radioactive substances. To these must be added the internal and external radiation resulting from the continued deposition of fallout.

Present contamination of the environment is not great, but it is considered essential that the levels of background radiation be established accurately before further increase occurs. Increases may result from the use of nuclear reactors for propulsion, power generation, distillation of water as well as nuclear explosions used for peaceful purposes. Without previous measurements having been made it is not possible to detect increases in environmental contamination. A program of measurement of background gamma radiation in the Western Australian environment has been commenced and will continue in 1968.

Luminous Watches and Clocks

In order to assist the Radiological Advisory Council in determining limits for exemption from the Regulations of luminous watches and clocks, the Laboratory carried out an extensive survey of the Radioactivity present in watches and clocks on sale in Western Australia. This survey showed that the average quantity of radium used in luminising a watch was $0.02 \mu\text{Ci}$, a significant reduction on previously reported values.

Dental X-ray Cone

In radiography, the use of the smallest possible X-ray beam results in a significant reduction of the doses delivered to the patient and received by the operator. In co-operation with several members of the dental profession, a rectangular, open-ended X-ray cone is being developed. Prototypes have been constructed and extensive trials carried out in dental surgeries. The new cone greatly reduces the area of the patient's skin which is irradiated.

Mass Miniature Chest Radiography—Gonad Dose Survey

At the request of the Director of the T.B. Control Branch, a survey of the gonad doses received in mass miniature chest radiography was initiated. The survey will continue in 1968.

Staff

The staff of the Physics Division consists of the Officer-in-Charge, two physicists, Radiation Technologist, a technician, and a part-time inspector. In August, Senior Radiation Officer D. B. Yeates was granted leave to undertake a course in Radiation Protection at the University of Surrey.

Education

1. Radiographers

Laboratory staff are responsible for the teaching of Radiographic Equipment A, one of the subjects in the three years course of training for diagnostic radiographers.

2. Nurses

A series of three lectures on Radioactive Substances and protection are given twice yearly to final year trainee nurses at the Sir Charles Gairdner Hospital.

3. Health and Factory Inspectors

Trainee Health and Factory Inspectors as well as qualified Health Inspectors are instructed on X-rays, radioactive substances and protection as part of their course. Notes for correspondence students have also been prepared.

4. Industrial Radiographers

Laboratory personnel gave a number of the lectures in the new course on Radiation Safety for Industrial Radiographers.

5. Medical Students

The Physicist-in-Charge lectured to fifth year medical students on the Uses and Hazards of Radiation.

Lectures

1. Institution of Engineers

Topic : “ Ionising Radiation, the Engineer’s Responsibility ”

Lecturer : B. E. King

2. Dental Study Groups

(a) Topic : “ Rectangular Cone Radiography ”

Lecturer : L. M. Davies

(b) Topic : “ The Radiation Hazard ”

Lecturer : B. E. King

3. Royal Australian Chemical Institute

Topic : “ Applications of Radiation in Analytical Chemistry ”

Lecturer : L. M. Davies

4. W.A. Institute of Technology, Staff Seminar

Topic : “ Applications of Radiation in Industry ”

Lecturer : L. M. Davies

Civil Defence

Laboratory staff continue to assist the Civil Defence organisation by lecturing on Radiological Aspects of Civil Defence and advising the organisation on specific questions concerned with monitoring and radiation protection.

Activities of General and Meat Inspection Branches

A. A. Pilbeam, Chief Inspector

General Sanitation Report

Rapid increases in commitments placed upon the Inspection Branch of the Public Health Department during 1967, have far outstripped the capabilities of the limited trained staff which is available to cope with these requirements. Serious shortages exist in all sections of the General and Meat Inspection staffs. These deficiencies are reaching a level where it will be impossible to maintain satisfactory standards within the Inspection Services. The standard of efficiency provided by the existing General Staff continued to improve, but increased responsibilities seriously reduced the overall productive results of the Section. Research and more concentrated interests in selected and important aspects of Public Health received close attention during 1967.

North-West Health Inspection Services

Changes in personnel occurred during the year and more direct control became evident as Departmental officers were appointed to fill the positions for a period of not less than two years.

West Kimberley Regional Group

This Regional Group is now controlled by Mr R. L. Moss, who is based at Derby.

Pilbara Regional Group

Mr K. Watt now handles the affairs of this district and is centred at Port Hedland.

North-West Inland Areas

Regular inspections throughout the year are made, departmentally, by Mr S. Kennedy. The towns of Wittenoom, Tom Price, Nullagine, Mt Newman and Marble Bar receive attention.

Exmouth (North West Cape)

Changes in Health Inspections Services occurred in the Shire of Exmouth during 1967. Mr V. Buchanan, Health Inspector to the Shire was appointed to the American Base at a much more lucrative salary than that received from the Shire of Exmouth. His position is now occupied by Mr Welsh.

Rubbish Report

Co-operation with local authorities, through the system of the established Zone Committees which have been functioning for some considerable time, was the keynote of the progress so evident in this field during 1967. Mr Slattery continues to accept and resolve the many problems associated with these important aspects of environmental sanitation.

Sub-division of Land

The year's activities were as follows :—

| | | | | | | |
|---|------|------|------|------|------|-------|
| Proposals for sub-division | .... | .... | .... | .... | .... | 572 |
| Country proposals for sub-division | .... | .... | .... | .... | .... | 23 |
| State Housing Commission | .... | .... | .... | .... | .... | 14 |
| Area surveys | .... | .... | .... | .... | .... | 31 |
| Appeals | .... | .... | .... | .... | .... | 19 |
| Taxation Department | .... | .... | .... | .... | .... | 22 |
| Public Works Department | .... | .... | .... | .... | .... | 6 |
| General enquiries, Local Authorities, Land Agents, etc. | .... | .... | .... | .... | .... | 421 |
| | | | | | | 1,108 |

Area surveys during this year included proposals for provision of local deep sewer-age schemes at local authority level or private proposers.

Royal Show

Progress relating to general improvements at the Royal Show was again evident. Special attention was directed to the control of food handling premises where a system of registration, consistent with approved standards, was adopted. The results were quite effective and were accomplished with the full co-operation of the Royal Agriculture Society.

Fly Control

The annual Fly Control Campaign operated as usual. A total number of 41,073 premises were visited. Altogether, 2,852 fly breeding places were detected. A total of 16 Local Authorities participated and 43 university students were employed over a period of from 4 to 10 weeks each. Information relating to the effectiveness of the Fly Control Campaign is shown at Table "A".

Mosquito Control

Control and eradication measures were carried out during the year in a number of selected premises and places.

Pest Control

The Pest Control Section maintained its valuable contribution towards improved environmental sanitation. The continued support of the Officer-in-Charge, Mr J. Fowler and his staff, is most appreciated.

Specific functions covered the following items

- (1) Experimental work relating to fly control in skin sheds and poultry farms.
- (2) Sixty-four routine pest control treatments of Government properties were carried out.
- (3) 120 inspections at abattoir properties, with reference to fly control, received attention.
- (4) Inspections at the Subiaco and Swanbourne Sewage Treatment Works numbered 64 for the year. Total treatments for the year were 707.
- (5) Lectures and demonstrations on Fly Control to university students were carried out.
- (6) Lectures to Health Inspectors and Country Liaison Groups on pesticides were effected.
- (7) Experiments on caged wild rats using " Raticate " rat bait were undertaken.
- (8) The collection of water snails for use in research at the Department of Parasitology, Sydney University, was continued.

| Item | Animal Control | | Pest Control Treatments | | | | | | | | | | | | | |
|-----------|----------------|-----|-------------------------|-----|---------|-------|-----|------|----------|-------------|---------|--------|-------------|-----|------|-------------------|
| | Rodent | Cat | Cockroach | Fly | Termite | Midge | Ant | Flea | Mosquito | Silver Fish | Bed Bug | Spider | Pigeon Mite | Bee | Lice | Drug Store Beetle |
| No. Cases | | | | | | | | | | | | | | | | |
| 1967 | 237 | 10 | 189 | 94 | 74 | 18 | 17 | 16 | 19 | 8 | 6 | 6 | 9 | 2 | 1 | 1 |
| 1966 | 268 | 12 | 199 | 78 | 86 | 19 | 29 | 13 | 6 | 11 | ... | ... | 5 | 5 | ... | ... |

Septic Tanks

| | | | | | | |
|-----------------------------|------|------|------|------|------|--------|
| Total applications received | .... | .... | .... | .... | .... | 10,425 |
| Total combined systems | .... | .... | .... | .... | .... | 9,143 |
| Total separate systems | .... | .... | .... | .... | .... | 1,282 |

These figures show a considerable increase over the applications which were submitted and approved for the year 1966.

Six Pint Flushing Systems

A total of 42 six pint cisterns were examined and passed by the General Inspection Branch. 136 six pint pans were similarly treated.

Inspection of Imported Fish and Food at Fremantle Wharf

A total weight of 1,542 tons of imported frozen fish was examined and passed for sale to the public. Increased imports of foodstuffs into Western Australia continued to become more evident. A system of recording details relating to foodstuffs received at Fremantle Wharf was adopted and has continued to function with satisfactory results. Limited sampling of food was introduced during the year and some interesting results in this field were observed.

Routine Food and Water Sampling

| | | | | | | | | |
|----------------|------|------|------|------|------|------|------|-------|
| Food | .... | .... | .... | .... | .... | .... | .... | 74 |
| Miscellaneous |  | .... | .... | .... | .... | .... | .... | 34 |
| Reservoirs | .... | .... | .... | .... | .... | .... | .... | 64 |
| Swimming Pools | .... | .... | .... | .... | .... | .... | .... | 91 |
| Ocean Beaches | .... | .... | .... | .... | .... | .... | .... | 780 |
| Totals | .... | .... | .... | .... | .... | .... | .... | 1,043 |

General Inspections

Towns—59, including hospitals and special inspections.

This important aspect of environmental sanitation is being neglected more each year, as specific items and problems absorb the time and energies of the inadequate, trained staff. It is most essential that routine country inspections should continue at a high level and adequate provisions will need to be made available to perform this function.

Special Projects

Several special projects which commenced during 1966 continued towards completion.

- Further undertakings were as follows :—
- (1) A liaison with relevant Local Authority interests was formed to formulate methods of disposing of rubbish in country districts. The group was centred at Bunbury and will function on similar lines to those already operating with the Metropolitan Rubbish Control Planning Committee.
 - (2) Meetings were arranged with representatives of the septic tank industry to consider draft forms of the new Septic Tank Regulations.
 - (3) Crayfish processing works throughout the State were closely examined and conditions were considerably improved.

Health Inspectors' Country Liaison Groups

These groups continued to meet and function at very regular intervals and were well attended on all occasions. It is apparent that this aspect of Departmental communication on technical matters at Local Authority level, is now an accepted fact.

Annual Health Inspectors' Conference, 1967

This year's Conference was held at Perry Lakes Stadium, Floreat Park, and was quite successful. An interesting feature of the Conference was the introduction of an exhibition which was held conjointly with the Conference. Exhibits were provided by local representatives and distributors of various companies associated with environmental sanitation and public health. Their assistance and ready co-operation in making the exhibition a success was most appreciated.

Meat Inspection

The affairs of the Meat Inspection continued to function satisfactorily, although it was again evident that insufficient staff was available to properly man the abattoirs—particularly Robbs Jetty. Figures relating to Meat Inspection details are shown at Appendix “XXI”.

Table A

METROPOLITAN FLY CAMPAIGN 1967/68—SUMMARY OF RESULTS

| Local Authority | No. of students employed | Time of employment (in weeks) | No. of Premises visited | No. of Premises where breeding detected | No. of breeding places found | Rubbish Bins | Buried food wastes | Poultry keeping | Incinerators | Mulch | Compost heaps | Blood and Bone | Animal manure | Fowl Manure | Lawn clippings | Others |
|---------------------------|--------------------------|-------------------------------|-------------------------|---|------------------------------|--------------|--------------------|-----------------|--------------|-------|---------------|----------------|---------------|-------------|----------------|--------------|
| City of Fremantle | 4 | 32 | 5,772 | 207 | 207 | 121 | 14 | 16 | 7 | 1 | 8 | ... | 7 | 10 | 23 | ... |
| Shire of Peppermint Grove | 1 | 4 | 382 | 7 | 9 | 1 | ... | ... | ... | 1 | ... | ... | 1 | 1 | 5 | ... |
| Shire of Cockburn | 1 | 6 | 1,124 | 173 | 189 | 10 | 10 | 14 | 2 | 3 | 8 | 1 | 7 | 4 | 130 | ... |
| Shire of Canning | 2 | 8 | 1,234 | 56 | 56 | 28 | 5 | 4 | ... | 1 | 2 | ... | 2 | ... | 14 | ... |
| City of Nedlands | 3 | 12 | 1,682 | 94 | 94 | 43 | 7 | 1 | 4 | ... | 11 | ... | 4 | ... | 21 | ... |
| Shire of Perth | 5 | 37 | 4,264 | 530 | 554 | 233 | 68 | 22 | 14 | 19 | 19 | ... | 23 | 3 | 110 | 7 |
| City of South Perth | 6 | 24 | 4,714 | 229 | 229 | 110 | 4 | 17 | 4 | 1 | 4 | ... | 10 | 39 | 76 | ... |
| Shire of Bayswater | 3 | 18 | 2,120 | 126 | 143 | 33 | 6 | 47 | 6 | 2 | 3 | 1 | 4 | 6 | 35 | ... |
| Town of Cottesloe | 4 | 16 | 2,112 | 111 | 128 | 49 | 10 | 4 | 1 | 11 | 13 | ... | 2 | 7 | 31 | ... |
| Shire of Swan/Guildford | 1 | 17 | 1,782 | 119 | 119 | 59 | 12 | 2 | 11 | 1 | 5 | ... | 6 | 6 | 17 | ... |
| Town of Midland | 1 | 6 | 1,339 | 169 | 191 | 74 | 21 | 21 | 7 | 5 | 14 | 3 | 12 | 15 | 19 | ... |
| Shire of Bassendean | 1 | 6 | 1,046 | 70 | 70 | 40 | 4 | 6 | 3 | 3 | 3 | 4 | 1 | 1 | 5 | ... |
| City of Subiaco | 2 | 16 | 3,274 | 125 | 125 | 29 | 5 | 7 | 3 | 2 | 37 | ... | 1 | 1 | 40 | ... |
| Shire of Belmont | 4 | 50 | 5,676 | 326 | 330 | 104 | 41 | 34 | 9 | 6 | 10 | ... | 9 | 10 | 107 | ... |
| City of Perth | 3 | 27 | 2,559 | 274 | 274 | 104 | 23 | 22 | 7 | 10 | 10 | 1 | 8 | 17 | 72 | ... |
| | 41 | 279 | 39,080 | 2,616 | 2,718 | 1,038 | 230 | 217 | 78 | 66 | 147 | 10 | 97 | 123 | 705 | 7 |
| Town of Geraldton | 2 | 10 | 1,993 | 236 | 604 | 139 | 39 | 267 | 5 | 115 | 17 | 1 | 10 | 1 | 9 | 1 Seaweed |

FLY CAMPAIGN 1967/68
Comparison with 1966/67

| Local Authority | Number of Premises Visited | | Number of Houses Breeding Flies | | Percentage of Houses Breeding Flies | |
|---------------------------|----------------------------|---------|---------------------------------|---------|-------------------------------------|---------|
| | 1966/67 | 1967/68 | 1966/67 | 1967/68 | 1966/67 | 1967/68 |
| <i>Metropolitan—</i> | | | | | | |
| Shire of Bayswater | | | | | | |
| Shire of Bassendean | | | | | | |
| Shire of Belmont | | | | | | |
| Shire of Canning | | | | | | |
| Shire of Cockburn | | | | | | |
| Town of Cottesloe | | | | | | |
| City of Fremantle | | | | | | |
| Town of Midland | | | | | | |
| City of Nedlands | | | | | | |
| City of Perth | | | | | | |
| Shire of Peppermint Grove | | | | | | |
| Shire of Perth | | | | | | |
| City of South Perth | | | | | | |
| City of Subiaco | | | | | | |
| Shire of Swan/Guildford | | | | | | |
| <i>Country—</i> | | | | | | |
| Town of Geraldton | | | | | | |

METROPOLITAN BREEDING RATE

| | | | | | | | | | | | | |
|---------|------|------|------|------|------|------|------|------|------|------|------|-----|
| | | | | | | | | | | | | % |
| 1966/67 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 7.8 |
| 1967/68 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 6.7 |

Appendix XIV

Public Buildings Section Report

R. T. Dunstan, Senior Inspector

This section administers Part VI of the Health Act, (Public Buildings), the Health Act, (Swimming Pools) Regulations, 1964 and the Health, 1911 Private Hospitals Regulations through-out the whole of the State.

The section has had another busy year, plans and specification of 337 projects having an estimated total cost of \$13,654,841.00 have been examined and approved. These buildings include civic centres, public halls, assembly halls, theatres, churches, hospitals, schools, grandstands, public swimming pools and recreation club buildings.

The construction and fitting-up of these buildings, including the electrical installations have been supervised by this section.

Routine surveys have been made of various country swimming pools including the north-west area to determine—

- (a) Whether the swimming pool water treatment has been properly maintained.
- (b) Whether the electric lighting is of the intensity required by the regulations.

Advice has been given to Shire Councils, Swimming Pool designers and Swimming Pool Managers on design, amenities requirements, filtration and chemical treatment of water.

At the request of the Local Authorities Swimming Pool Conference a lecture was given by an officer of this section to members of the conference comprising representatives of Shire Councils and swimming pool managers on 22nd September, 1967. The talk was based on the desirable features of a swimming pool with particular reference to chlorination and filtration. A comparison was made of the relative merits of water in an approved pool compared with river water and ocean beaches ; also pool hygiene.

A further request from the Local Authorities Swimming Pool Conference was acceded to with reference to assistance required in establishing a course for “Swimming pool managers’ Certificate of competency”. Officers of this Section have consented to give lectures to students in swimming management classes, or if necessary by correspondence, on the subjects of—

- 1. “Purification and clarity of water and hygiene.”
- 2. “Swimming Pools (Health Act) Regulations.”

Inspections

Regular inspections have been made of public buildings to see that they meet with the requirements of the Public Buildings Regulations with respect to structural stability, ventilation, toilet requirements, sanitation, and the electrical installation. The Royal Agricultural showgrounds buildings at Claremont are inspected annually by this section and several improvements have been achieved.

Appendix XV

Royal Perth, Fremantle and Princess Margaret Hospitals
ALL PATIENTS DISCHARGED

| Hospital | Year | Number of Cases | Total Days Stay in Hospital | Average Number of Days in Hospital | Daily Bed Average |
|---------------------------------|------|--------------------|--------------------------------------|---|-------------------------|
| Fremantle Hospital | 1965 | 8,961 | 81,986 | 9.1 | 224.5 |
| | 1966 | 8,373 | 84,917 | 10.1 | 232.6 |
| | 1967 | 8,321 | 81,462 | 9.8 | 223.2 |
| Princess Margaret Hospital | 1965 | 7,888 | 54,227 | 6.9 | 148.5 |
| | 1966 | 7,699 | 53,549 | 6.9 | 146.7 |
| | 1967 | 7,937 | 55,397 | 7.0 | 151.8 |
| Royal Perth Hospital | 1965 | 14,677 | 259,433 | 17.7 | 710.3 |
| | 1966 | 14,974 | 263,395 | 17.6 | 721.6 |
| | 1967 | 15,765 | 266,053 | 16.9 | 728.9 |

OPERATION CASES

| | | | | | |
|---------------------------------|------|-------|---------|------|-------|
| Fremantle Hospital | 1965 | 5,263 | 48,768 | 9.3 | 133.6 |
| | 1966 | 4,603 | 44,219 | 9.6 | 121.1 |
| | 1967 | 4,702 | 41,353 | 8.8 | 113.3 |
| Princess Margaret Hospital | 1965 | 2,537 | 19,497 | 7.7 | 53.4 |
| | 1966 | 2,596 | 19,826 | 7.6 | 54.3 |
| | 1967 | 2,547 | 19,554 | 7.7 | 53.6 |
| Royal Perth Hospital | 1965 | 7,085 | 142,698 | 20.1 | 390.7 |
| | 1966 | 7,609 | 150,449 | 19.8 | 412.2 |
| | 1967 | 7,843 | 155,789 | 19.9 | 426.8 |

ACCIDENTS, POISONING AND VIOLENCE

| Hospital | Year | Number of Cases | Total Days Stay in Hospital | Percentage of Total Hospital Beds Occupied | Number Died |
|---------------------------------|------|--------------------|--------------------------------------|--|----------------|
| Fremantle Hospital | 1965 | 1,755 | 18,339 | 22.37 | 25 |
| | 1966 | 1,531 | 18,923 | 22.28 | 18 |
| | 1967 | 1,453 | 16,746 | 20.56 | 27 |
| Princess Margaret Hospital | 1965 | 1,598 | 9,122 | 16.82 | 8 |
| | 1966 | 1,684 | 8,313 | 15.52 | 5 |
| | 1967 | 1,652 | 8,131 | 14.68 | 7 |
| Royal Perth Hospital | 1965 | 3,219 | 64,908 | 25.02 | 91 |
| | 1966 | 3,556 | 59,440 | 22.57 | 99 |
| | 1967 | 4,301 | 65,269 | 24.53 | 111 |

King Edward Memorial and Sir Charles Gairdner Hospitals
ALL PATIENTS DISCHARGED

| Hospital | Year | Number of Cases | Total Days Stay in Hospital | Average Number of Days in Hospital | Daily Bed Average |
|------------------------------------|------|--------------------|--------------------------------------|---|-------------------------|
| King Edward Memorial Hospital | 1965 | 4,969 | 43,433 | 8.7 | 118.9 |
| | 1966 | 5,215 | 46,436 | 8.9 | 127.2 |
| | 1967 | 5,186 | 45,439 | 8.8 | 124.5 |
| Sir Charles Gairdner Hospital | 1965 | 2,386 | 57,239 | 24.0 | 156.7 |
| | 1966 | 3,877 | 76,683 | 19.8 | 210.1 |
| | 1967 | 3,562 | 74,227 | 20.8 | 203.4 |

OPERATION CASES

| | | | | | |
|------------------------------------|------|-------|--------|------|------|
| King Edward Memorial Hospital | 1965 | 1,254 | 12,325 | 9·8 | 33·7 |
| | | 2,362 | 22,860 | 9·7 | 62·6 |
| | | 2,535 | 23,959 | 9·4 | 65·6 |
| Sir Charles Gairdner Hospital | 1965 | 738 | 16,252 | 22·0 | 44·5 |
| | | 1,419 | 28,037 | 19·8 | 76·8 |
| | | 1,398 | 29,412 | 21·0 | 80·6 |

ACCIDENTS, POISONINGS, AND VIOLENCE

| Hospital | Year | Number Of Cases | Total Days Stay in Hospital | Percent of Total Hospital Beds Occupied | Number Died |
|------------------------------------|------|--------------------|--------------------------------------|---|----------------|
| King Edward Memorial Hospital | 1965 | 12 | 106 | 0·24 | .... |
| | 1966 | 10 | 51 | 0·11 | .... |
| | 1967 | 17 | 84 | 0·19 | .... |
| Sir Charles Gairdner Hospital | 1965 | 66 | 659 | 1·15 | 2 |
| | 1966 | 167 | 2,199 | 2·86 | 3 |
| | 1967 | 265 | 3,571 | 6·24 | 8 |

Royal Perth, Fremantle, Princess Margaret, Sir Charles Gairdner and King Edward Memorial Hospitals

ALL PATIENTS DISCHARGED, 1967, IN AGE GROUPS

| Age Groups | Number of Cases | | Per cent. of Total | | Total Days Stay in Hospital | | Per cent. of Grand Total | | Average No. of Days in Hospital | |
|----------------------------|-----------------|--------|--------------------|-------|--------------------------------|---------|-----------------------------|-------|------------------------------------|-------|
| | M | F | M | F | M | F | M | F | M | F |
| 00-14 | 6,217 | 4,264 | 15·10 | 10·48 | 42,001 | 30,139 | 8·04 | 5·77 | 6·76 | 7·07 |
| 15-19 | 1,159 | 1,983 | 2·85 | 4·87 | 11,599 | 16,476 | 2·22 | 3·15 | 10·01 | 8·31 |
| 20-29 | 1,949 | 4,226 | 4·79 | 10·38 | 21,383 | 35,239 | 4·09 | 6·74 | 10·97 | 10·70 |
| 30-39 | 1,537 | 2,323 | 3·78 | 5·71 | 20,201 | 23,611 | 3·87 | 4·52 | 13·14 | 10·16 |
| 40-49 | 1,666 | 1,789 | 4·08 | 4·40 | 26,305 | 23,734 | 5·03 | 4·54 | 15·79 | 13·27 |
| 50-59 | 1,991 | 1,733 | 4·89 | 4·26 | 35,355 | 32,988 | 6·77 | 6·31 | 17·76 | 19·04 |
| 60-69 | 2,401 | 2,264 | 5·90 | 5·56 | 47,767 | 44,034 | 9·14 | 8·43 | 19·89 | 19·45 |
| 70 and over | 2,271 | 2,967 | 5·58 | 7·29 | 46,309 | 65,114 | 8·86 | 12·46 | 20·39 | 21·95 |
| Not Known | 11 | 20 | 0·03 | 0·05 | 79 | 244 | 0·02 | 0·05 | 7·18 | 12·20 |
| Total | 19,202 | 21,569 | 47·00 | 53·00 | 250,999 | 271,579 | 48·04 | 51·96 | 13·07 | 12·59 |
| Total Male and Female | 40,701 | | 100 | | 522,578 | | 100 | | 12·84 | |

Daily Bed Average—1,431·72

Royal Perth, Fremantle, Princess Margaret, Sir Charles Gairdner and King Edward Memorial Hospitals

OPERATION CASES IN AGE GROUPS, 1967

| Age Groups | Number of Cases | | Per cent. of Total | | Total Days Stay in Hospital | | Per cent. of Grand Total | | Average No. of Days in Hospital | |
|----------------------------|-----------------|--------|--------------------|-------|--------------------------------|---------|-----------------------------|-------|------------------------------------|-------|
| | M | F | M | F | M | F | M | F | M | F |
| 00-14 | 2,350 | 1,631 | 5·77 | 4·01 | 15,532 | 10,689 | 2·97 | 2·05 | 6·61 | 6·55 |
| 15-19 | 640 | 980 | 1·57 | 2·41 | 7,763 | 9,753 | 1·49 | 1·87 | 12·13 | 9·95 |
| 20-29 | 1,061 | 2,033 | 2·61 | 5·00 | 15,176 | 18,822 | 2·90 | 3·60 | 14·30 | 9·26 |
| 30-39 | 820 | 1,196 | 2·01 | 2·94 | 11,489 | 13,891 | 2·20 | 2·66 | 14·01 | 11·61 |
| 40-49 | 820 | 967 | 2·01 | 2·38 | 15,364 | 13,230 | 2·94 | 2·53 | 18·74 | 13·68 |
| 50-59 | 980 | 968 | 2·41 | 2·38 | 14,929 | 20,204 | 2·86 | 3·87 | 15·23 | 20·87 |
| 60-69 | 1,123 | 1,143 | 2·76 | 2·81 | 24,121 | 23,285 | 4·62 | 4·46 | 21·48 | 20·37 |
| 70 and over | 1,029 | 1,277 | 2·53 | 3·14 | 24,590 | 31,326 | 4·71 | 5·99 | 23·90 | 24·53 |
| Not Known | 2 | 5 | 0·00 | 0·01 | 19 | 84 | 0·00 | 0·02 | 9·50 | 16·80 |
| Total | 8,825 | 10,200 | 21·68 | 25·06 | 128,983 | 141,284 | 24·68 | 27·05 | 14·62 | 13·85 |
| Total Male and Female | 19,025 | | 46·74 | | 270,267 | | 51·73 | | 14·21 | |

Daily Bed Average—740·46

Royal Perth, Fremantle, Princess Margaret, Sir Charles Gairdner and King Edward Memorial Hospitals

PATIENTS DISCHARGED DURING 1967

| Item | Disease | International Classification Categories | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | Sex | Results* | | | | |
|------|--|---|-----------------|--------|----------------------------|--------|--------------------------|--------|---------------------------------|--------|-------------------------|--------|-----|----------|-----|------|------|------|
| | | | | | | | | | | | | | | | | | | |
| | | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | | 1 | 2 | 3 | 4 | 5 |
| 1 | Tuberculosis—All Forms | 001-019 | 106 | 62 | 8,916 | 5,109 | 1·71 | 0·93 | 84·11 | 82·40 | 52 | 48 | M | 2 | 89 | 8 | 4 | 3 |
| 2 | Syphilis, Gonorrhoea and other Venereal Diseases | 020-039 | 9 | 14 | 38 | 153 | 0·01 | 0·03 | 4·22 | 10·93 | 42 | 25 | F | .... | 54 | 4 | 2 | 2 |
| | | | | | | | | | | | | | M | .... | 7 | 1 | .... | 1 |
| | | | | | | | | | | | | | F | 2 | 12 | .... | .... | .... |
| 3 | Other Infectious Diseases | 040-138 | 480 | 413 | 4,289 | 3,747 | 0·82 | 0·72 | 8·94 | 9·07 | 14 | 18 | M | 18 | 447 | 10 | .... | 5 |
| 4 | Malignant Neoplasms, including those of Lymphatic and Haematopoietic Systems | 140-205 | 980 | 1,027 | 21,039 | 21,027 | 9·03 | 4·02 | 21·47 | 20·47 | 59 | 59 | F | 28 | 366 | 9 | .... | 10 |
| 5 | Benign and Unspecified Neoplasms | 210-239 | 181 | 405 | 1,719 | 4,262 | 0·33 | 0·82 | 9·50 | 10·52 | 34 | 40 | M | 21 | 474 | 241 | 7 | 237 |
| 6 | Allergic Disorders | 240-245 | 367 | 469 | 2,396 | 4,390 | 0·46 | 0·84 | 6·53 | 9·36 | 22 | 31 | F | 32 | 655 | 168 | 28 | 144 |
| 7 | Diseases of Thyroid Gland | 250-254 | 19 | 75 | 225 | 1,331 | 0·04 | 0·25 | 11·84 | 17·75 | 47 | 47 | M | 16 | 148 | 10 | 4 | 3 |
| 8 | Diabetes Mellitus | 260 | 110 | 137 | 1,619 | 3,210 | 0·31 | 0·61 | 14·72 | 23·43 | 45 | 54 | F | 56 | 321 | 12 | 14 | 2 |
| 9 | Diseases of other Endocrine Glands | 270-277 | 24 | 44 | 395 | 798 | 0·08 | 0·15 | 16·46 | 18·14 | 28 | 41 | M | 5 | 351 | 7 | .... | 4 |
| 10 | Avitaminoses and other Metabolic Diseases | 280-289 | 67 | 68 | 1,339 | 1,138 | 0·26 | 0·22 | 19·99 | 16·74 | 41 | 40 | F | 17 | 446 | 6 | .... | .... |
| 11 | Diseases of Blood Forming Organs and Blood | 290-299 | 151 | 147 | 1,804 | 1,870 | 0·35 | 0·36 | 11·95 | 12·72 | 31 | 48 | M | 3 | 13 | 3 | .... | .... |
| 12 | Mental Psychoneurotic and Personality Disorders | 300-326 | 501 | 585 | 8,104 | 9,946 | 1·55 | 1·90 | 16·18 | 17·00 | 41 | 42 | F | 4 | 61 | 8 | .... | 2 |
| 13 | Vascular Lesions Affecting Central Nervous System | 330-334 | 321 | 321 | 8,429 | 11,058 | 1·67 | 2·12 | 26·26 | 34·45 | 63 | 66 | M | 1 | 15 | 15 | 1 | 7 |
| 14 | Inflammatory and other Diseases of Central Nervous System | 340-357 | 391 | 313 | 6,591 | 5,743 | 1·27 | 1·10 | 16·86 | 18·35 | 33 | 41 | F | .... | 15 | 21 | .... | .... |
| 15 | Diseases of Nervous and Peripheral Ganglia | 360-369 | 73 | 75 | 1,218 | 1,034 | 0·23 | 0·20 | 16·68 | 13·79 | 49 | 50 | M | 3 | 47 | 15 | .... | .... |
| 16 | Diseases of the eye.... | 370-389 | 503 | 503 | 5,028 | 5,401 | 0·96 | 1·03 | 10·00 | 10·74 | 39 | 46 | F | 2 | 54 | 13 | 1 | .... |
| 17 | Diseases of Ear and Mastoid Process | 390-398 | 275 | 276 | 1,568 | 1,561 | 0·30 | 0·30 | 5·70 | 5·66 | 17 | 28 | M | 55 | 63 | 9 | 4 | 3 |
| 18 | Rheumatic Fever and Chronic Rheumatic Heart Disease | 400-416 | 118 | 125 | 2,452 | 2,216 | 0·47 | 0·42 | 20·78 | 17·73 | 29 | 31 | F | 61 | 397 | 44 | 4 | 3 |
| 19 | Diseases of the Heart and Arteries Including Hypertension and Arteriosclerosis | 420-456 | 1,158 | 866 | 22,393 | 17,392 | 4·29 | 3·33 | 19·34 | 20·08 | 61 | 66 | M | 10 | 396 | 39 | 4 | .... |
| | | | | | | | | | | | | | F | 16 | 257 | 8 | .... | .... |
| | | | | | | | | | | | | | | 1 | 243 | 13 | 4 | .... |
| | | | | | | | | | | | | | | 2 | 89 | 17 | 5 | 6 |
| | | | | | | | | | | | | | | 35 | 99 | 12 | 6 | 6 |
| | | | | | | | | | | | | | | 17 | 826 | 107 | 10 | 180 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | .... | 630 | 79 | 4 | 136 |

| | | | | | | | | | | | | | | | | | | |
|----|--|---------|--------|--------|---------|---------|-------|-------|-------|-------|-----|-----|---|-------|--------|-------|-----|-------|
| 20 | Diseases of Veins and other Diseases of Circulatory System | 460-468 | 283 | 362 | 4,098 | 5,255 | 0·78 | 1·01 | 14·48 | 14·52 | 45 | 50 | M | 15 | 243 | 15 | 1 | 9 |
| 21 | Diseases of Respiratory System | 470-527 | 2,067 | 1,536 | 17,314 | 12,126 | 3·31 | 2·32 | 8·38 | 7·89 | 27 | 24 | F | 24 | 309 | 18 | ... | 11 |
| 22 | Diseases of Buccal Cavity and Oesophagus | 530-539 | 226 | 241 | 931 | 720 | 0·18 | 0·14 | 4·12 | 2·99 | 26 | 24 | M | 57 | 157 | 11 | ... | 1 |
| 23 | Diseases of Stomach and Duodenum | 540-545 | 265 | 160 | 4,181 | 2,487 | 0·80 | 0·48 | 15·78 | 15·54 | 52 | 52 | F | 79 | 154 | 7 | ... | 1 |
| 24 | Appendicitis | 550-553 | 377 | 277 | 2,729 | 2,024 | 0·52 | 0·39 | 7·24 | 7·31 | 22 | 23 | M | 13 | 223 | 17 | ... | 12 |
| 25 | Hernia of Abdominal Cavity | 560-561 | 305 | 155 | 2,963 | 1,838 | 0·57 | 0·35 | 9·71 | 11·86 | 43 | 54 | F | 15 | 132 | 6 | ... | 6 |
| 26 | Other Diseases of Intestines and Peritoneum | 570-578 | 513 | 564 | 5,496 | 7,368 | 1·05 | 1·41 | 10·71 | 13·06 | 23 | 34 | M | 140 | 234 | 2 | ... | 1 |
| 27 | Diseases of Liver and Gall Bladder | 580-586 | 175 | 352 | 3,109 | 5,977 | 0·59 | 1·14 | 17·77 | 16·98 | 58 | 57 | F | 88 | 189 | ... | ... | ... |
| 28 | Diseases of Pancreas | 587 | 45 | 29 | 880 | 600 | 0·17 | 0·11 | 19·56 | 20·69 | 35 | 44 | M | 34 | 248 | 18 | ... | 5 |
| 29 | Nephritis and Nephrosis | 590-594 | 110 | 87 | 1,541 | 1,246 | 0·29 | 0·24 | 14·01 | 14·32 | 19 | 27 | F | 20 | 118 | 16 | ... | 1 |
| 30 | Other Diseases of Urinary System | 600-609 | 293 | 438 | 3,149 | 5,507 | 0·60 | 1·05 | 10·75 | 12·57 | 43 | 37 | M | 22 | 459 | 12 | ... | 15 |
| 31 | Diseases of Male Genital Organs | 610-617 | 416 | ... | 5,571 | ... | 1·07 | ... | 13·39 | ... | 47 | ... | F | 28 | 482 | 29 | ... | 22 |
| 32 | Diseases of Breast | 620-621 | 1 | 46 | 2 | 231 | 0·00 | 0·04 | 2·00 | 5·03 | 22 | 47 | M | 25 | 123 | 16 | ... | 10 |
| 33 | Diseases of Female Genital Organs, Uterus, Ovary, Fallopian Tubes, Parametrium | 622-637 | ... | 1,103 | ... | 7,778 | ... | 1·49 | ... | 7·05 | ... | 39 | F | 49 | 268 | 22 | ... | 11 |
| 34 | Complications of Pregnancy | 640-649 | ... | 834 | ... | 3,651 | ... | 0·70 | ... | 4·38 | ... | 25 | M | 1 | 36 | 4 | ... | 4 |
| 35 | Abortion | 650-652 | ... | 461 | ... | 1,627 | ... | 0·31 | ... | 3·53 | ... | 27 | F | 2 | 22 | 4 | ... | 1 |
| 36 | Delivery Without Mention of Complication | 660 | ... | 2,851 | ... | 28,167 | ... | 5·39 | ... | 9·88 | ... | 25 | M | ... | 97 | 7 | ... | 4 |
| 37 | Delivery with Specified Complication | 670-678 | ... | 117 | ... | 986 | ... | 0·19 | ... | 8·43 | ... | 26 | F | ... | 74 | 5 | ... | ... |
| 38 | Complications of the Puerperium | 680-689 | ... | 24 | ... | 256 | ... | 0·05 | ... | 10·67 | ... | 30 | M | ... | ... | ... | ... | ... |
| 39 | Diseases of Skin and Cellular Tissue | 690-716 | 423 | 352 | 6,306 | 5,080 | 1·21 | 0·97 | 14·91 | 14·43 | 34 | 38 | F | ... | ... | ... | ... | 4 |
| 40 | Arthritis and Rheumatism Except Rheumatic Fever | 720-727 | 195 | 276 | 5,396 | 6,998 | 1·03 | 1·34 | 27·67 | 25·36 | 44 | 50 | M | 1 | 21 | 1 | ... | ... |
| 41 | Osteomyelitis and other Bone and Joint Diseases | 730-738 | 353 | 201 | 4,871 | 2,828 | 0·93 | 0·54 | 13·80 | 14·07 | 33 | 39 | F | 30 | 373 | 16 | ... | 3 |
| 42 | Other Diseases of Musculoskeletal System | 740-749 | 187 | 258 | 3,303 | 6,645 | 0·63 | 1·27 | 17·66 | 25·76 | 32 | 47 | M | 27 | 310 | 15 | ... | ... |
| 43 | Congenital Malformations | 750-759 | 360 | 287 | 4,712 | 3,984 | 0·90 | 0·76 | 13·09 | 13·88 | 9 | 10 | F | 4 | 170 | 17 | ... | ... |
| 44 | Birth Injuries, Asphyxia and Inflections of Newborn | 760-776 | 151 | 131 | 3,183 | 2,502 | 0·59 | 0·48 | 20·66 | 19·10 | 2 | 2 | M | 8 | 240 | 25 | ... | 4 |
| 45 | Symptoms Referable to Systems or Organs | 780-789 | 1,257 | 1,105 | 11,476 | 9,909 | 2·20 | 1·90 | 9·13 | 8·97 | 39 | 38 | F | 3 | 331 | 13 | ... | 21 |
| 46 | Senility and Ill-Defined Diseases | 790-795 | 136 | 231 | 1,659 | 3,877 | 0·32 | 0·74 | 12·20 | 16·78 | 46 | 48 | M | ... | 172 | 16 | ... | 9 |
| | Total | | 13,972 | 18,403 | 192,351 | 231,053 | 36·81 | 44·21 | 13·77 | 12·56 | 37 | 37 | F | 1,916 | 25,980 | 2,544 | 550 | 1,385 |

Royal Perth, Fremantle, Princess Margaret, Sir Charles Gairdner and King Edward Memorial Hospitals
PATIENTS DISCHARGED DURING 19.7—continued

| Item | Disease | International Classification Categories | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | * Results | | | | |
|------|--|---|--------------------|--------|-------------------------------|---------|-----------------------------|--------|------------------------------------|--------|----------------------------|--------|-----------|--------|-------|-----|-------|
| | | | | | | | | | | | | | | | | | |
| | | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | 1 | 2 | 3 | 4 | 5 |
| 47 | Fractures of Face and Skull Bones | N800-N804 | 310 | 103 | 3,614 | 1,000 | 0.69 | 0.19 | 11.66 | 9.71 | 29 | 26 | 16 | 265 | 17 | ... | 12 |
| 48 | Fractures and Dislocations of Vertebral Column | N805-N806 | 96 | 32 | 3,899 | 1,002 | 0.75 | 0.19 | 40.61 | 31.31 | 36 | 44 | 3 | 94 | 4 | ... | 2 |
| 49 | Other Fractures of Trunk, Sternum, Larynx and Pelvis | N807-N809 | 97 | 58 | 1,739 | 1,149 | 0.32 | 0.22 | 17.93 | 19.81 | 48 | 52 | ... | 82 | 13 | ... | 1 |
| 50 | Fractures of Upper Limb | N810-N819 | 464 | 318 | 3,451 | 2,319 | 0.66 | 0.44 | 7.44 | 7.29 | 22 | 32 | 1 | 26 | 4 | ... | 1 |
| 51 | Fractures of Lower Limb | N820-N829 | 561 | 532 | 14,541 | 19,684 | 2.78 | 3.77 | 25.92 | 37.00 | 37 | 61 | 3 | 90 | ... | ... | 4 |
| 52 | Dislocation Without Fracture | N830-N839 | 83 | 41 | 833 | 391 | 0.16 | 0.07 | 10.04 | 9.54 | 28 | 36 | 5 | 54 | 3 | ... | 1 |
| 53 | Sprains and Strains | N840-N848 | 136 | 41 | 1,111 | 324 | 0.21 | 0.06 | 8.17 | 7.90 | 32 | 36 | 4 | 448 | 9 | ... | 2 |
| 54 | Head Injury (Excluding Skull Fracture) | N850-N856 | 1,441 | 571 | 9,247 | 3,163 | 1.77 | 0.61 | 6.42 | 5.54 | 28 | 28 | 3 | 311 | 3 | ... | 1 |
| 55 | Internal Injury of Chest, Abdomen and Pelvis | N860-N869 | 90 | 28 | 1,432 | 288 | 0.27 | 0.06 | 15.91 | 10.29 | 31 | 27 | 16 | 511 | 19 | ... | 15 |
| 56 | Lacerations, Contusions and Superficial Injuries | N870-N929 | 897 | 323 | 6,673 | 2,241 | 0.28 | 0.43 | 7.44 | 6.94 | 25 | 24 | 22 | 454 | 21 | ... | 35 |
| 57 | Effects of Foreign Body Entering through Orifice | N930-N936 | 95 | 93 | 443 | 227 | 0.08 | 0.04 | 4.66 | 2.44 | 31 | 33 | 5 | 74 | ... | ... | 1 |
| 58 | Burns | N940-N949 | 200 | 115 | 4,036 | 1,098 | 0.77 | 0.37 | 20.18 | 16.59 | 20 | 16 | 36 | 191 | 3 | ... | 6 |
| 59 | Injury to Nerves and Spinal Cord Without Bone Injury | N950-N959 | 32 | 10 | 1,489 | 48 | 0.29 | 0.01 | 46.53 | 4.80 | 34 | 37 | ... | 109 | 8 | 1 | 4 |
| 60 | Effects of Poisons | N960-N979 | 370 | 490 | 1,695 | 2,983 | 0.32 | 0.57 | 4.58 | 6.09 | 20 | 28 | ... | 23 | ... | ... | ... |
| 61 | Effects of Exposure and Unspecified Injuries and Reactions | N980-N999 | 135 | 78 | 1,714 | 744 | 0.33 | 0.14 | 12.70 | 9.54 | 33 | 40 | 15 | 319 | 10 | ... | 5 |
| | Total (N Categories) | | 5,007 | 2,833 | 55,917 | 37,471 | 10.71 | 7.17 | 11.17 | 13.23 | 28 | 34 | 388 | 7,106 | 193 | 5 | 148 |
| 62 | Investigations, observations and Aftercare | Y00-Y10 | 223 | 333 | 2,731 | 3,055 | 0.52 | 0.57 | 12.25 | 9.17 | 34 | 33 | 10 | 162 | 26 | 25 | ... |
| | Total (Y Categories) | | 223 | 333 | 2,731 | 3,055 | 0.52 | 0.57 | 12.25 | 9.17 | 34 | 33 | 5 | 268 | 25 | 35 | ... |
| | Grand Total | | 19,202 | 21,569 | 250,999 | 271,579 | 48.04 | 51.96 | 13.07 | 12.59 | 34 | 37 | 15 | 430 | 51 | 60 | ... |
| | | | | | | | | | | | | | 2,319 | 33,516 | 2,788 | 615 | 1,533 |

* Results : 1 — Cured
2 — Improved
3 — Unchanged
4 — Investigation only
5 — Deaths

OPERATION CASES DISCHARGED, 1967

| Item | Operation | Code of Surgical Operations | Number of Cases | | Number of Days in Hospital | | Per cent. of Total Oper'n Beds | | Average Number Days in Hospital | | Average Age of Patients | | Sex | Results * | | | | |
|------|--|-----------------------------|-----------------|--------|----------------------------|--------|--------------------------------|--------|---------------------------------|--------|-------------------------|------|-----|-----------|-----|------|------|------|
| | | | Male | Female | Male | Female | Male | Female | Male | Female | 1 | 2 | | 3 | 4 | 5 | | |
| | | | | | | | | | | | | | | | | | | |
| 1 | Neurosurgery, Brain and Cerebral Meninges | 001-019 | 243 | 152 | 6,894 | 5,123 | 2·55 | 1·90 | 28·37 | 33·70 | 41 | 40 | M | 10 | 129 | 46 | 18 | 40 |
| 2 | Neurosurgery, Spinal Cord and Spinal Meninges | 020-029 | 83 | 62 | 1,823 | 1,467 | 0·67 | 0·54 | 21·96 | 23·66 | 40 | 46 | F | 6 | 77 | 30 | 14 | 25 |
| 3 | Neurosurgery, Peripheral Nerves and Sympathetic System | 030-049 | 53 | 32 | 1,080 | 755 | 0·40 | 0·28 | 20·38 | 19·36 | 47 | 45 | F | 4 | 54 | 14 | 4 | 7 |
| 4 | Thyroid and Parathyroid | 070-079 | 16 | 48 | 215 | 753 | 0·08 | 0·28 | 13·44 | 15·69 | 47 | 49 | M | 4 | 38 | 12 | 4 | 4 |
| 5 | Adrenals | 080-084 | 2 | 9 | 34 | 258 | 0·01 | 0·10 | 17·00 | 28·67 | 23 | 43 | M | 1 | 44 | 7 | 1 | 1 |
| 6 | Pituitary, Thymus and other Endocrine Organs | 085-096 | 1 | .... | 105 | .... | 0·04 | .... | 105·00 | .... | 62 | .... | F | 2 | 28 | 2 | .... | .... |
| 7 | Ophthalmic Operations | 100-199 | 475 | 455 | 5,697 | 5,351 | 2·11 | 1·98 | 11·99 | 11·76 | 37 | 45 | M | 6 | 13 | 1 | .... | 1 |
| 8 | Ear, Nose and Throat | 200-249 | 566 | 411 | 5,962 | 2,739 | 2·21 | 1·10 | 10·53 | 6·66 | 30 | 32 | F | 29 | 39 | 2 | 2 | 1 |
| 9 | Tecth and Gums | 250-259 | 170 | 209 | 429 | 526 | 0·16 | 0·19 | 2·52 | 2·52 | 18 | 20 | M | 32 | 1 | 1 | .... | .... |
| 10 | Pharynx, Tongue, Palate and Buccal Cavity | 260-299 | 532 | 583 | 2,894 | 2,642 | 1·07 | 0·98 | 5·44 | 4·53 | 20 | 20 | F | 53 | 111 | 6 | .... | .... |
| 11 | Heart and Pericardium and Intrathoracic Great Vessels | 300-329 | 133 | 106 | 2,508 | 1,611 | 0·93 | 0·60 | 18·86 | 15·20 | 39 | 32 | F | 79 | 125 | 5 | .... | .... |
| 12 | Lung, Bronchus and Mediastinum and Collapse Therapy | 330-354 | 232 | 112 | 5,417 | 2,714 | 2·00 | 1·00 | 23·35 | 24·23 | 52 | 46 | M | 127 | 372 | 25 | 1 | 7 |
| 13 | Operations on Breast | 380-389 | 1 | 155 | 2 | 2,807 | 0·00 | 1·04 | 2·00 | 18·11 | 22 | 55 | F | 171 | 394 | 10 | 1 | 7 |
| 14 | Operations on Abdominal Wall | 400-419 | 401 | 280 | 5,843 | 5,081 | 2·16 | 1·88 | 14·57 | 18·15 | 42 | 51 | M | 13 | 74 | 25 | 8 | 13 |
| 15 | Operations on Stomach | 420-439 | 127 | 59 | 2,343 | 1,301 | 0·87 | 0·48 | 18·45 | 22·05 | 45 | 47 | F | 5 | 59 | 27 | 7 | 8 |
| 16 | Operations on Appendix | 440-449 | 377 | 316 | 2,698 | 2,332 | 1·00 | 0·86 | 7·16 | 7·38 | 22 | 22 | M | 17 | 153 | 38 | 7 | 17 |
| 17 | Operations on Intestines (Except Appendix and Rectum) | 450-469 | 148 | 153 | 3,604 | 3,480 | 1·33 | 1·29 | 24·35 | 22·75 | 46 | 60 | F | 2 | 89 | 11 | 1 | 9 |
| 18 | Operation on Rectum and Anus | 470-499 | 139 | 121 | 2,199 | 1,806 | 0·81 | 0·67 | 15·82 | 14·93 | 44 | 46 | M | .... | 6 | .... | .... | .... |
| 19 | Operation on Liver and Bile Ducts | 500-529 | 116 | 263 | 2,361 | 5,042 | 0·87 | 1·87 | 20·35 | 19·17 | 57 | 56 | F | 142 | 1 | .... | .... | .... |
| 20 | Operation on Pancreas | 530-539 | 3 | 3 | 113 | 163 | 0·04 | 0·06 | 37·67 | 54·33 | 39 | 43 | M | 91 | 233 | 1 | .... | .... |
| 21 | Operation on Spleen | 540-549 | 26 | 12 | 584 | 305 | 0·22 | 0·11 | 22·46 | 25·42 | 32 | 31 | F | 7 | 225 | .... | .... | .... |
| | | | | | | | | | | | | | | 115 | 12 | .... | .... | .... |
| | | | | | | | | | | | | | | 7 | 116 | 20 | 3 | 11 |
| | | | | | | | | | | | | | | 17 | 117 | 2 | 3 | 7 |
| | | | | | | | | | | | | | | 15 | 105 | 1 | 1 | 2 |
| | | | | | | | | | | | | | | 29 | 72 | 11 | .... | .... |
| | | | | | | | | | | | | | | 49 | 198 | 10 | 1 | 3 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | .... | 2 | .... | .... | 6 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | .... | 2 | .... | .... | 1 |
| | | | | | | | | | | | | | | 2 | 18 | 1 | 1 | 4 |
| | | | | | | | | | | | | | | 1 | 8 | 1 | .... | 2 |

Royal Perth, Fremantle, Princess Margaret, Sir Charles Gairdner and King Edward Memorial Hospitals
 OPERATION CASES DISCHARGED, 1967—continued

| Item | Operation | Code of Surgical Operations | Number of Cases | | Number of Days in Hospital | | Per cent. of Total Oper'n Beds | | Average Number Days in Hospital | | Average Age of Patients | | Sex | Results * | | | | |
|------|--|-----------------------------|-----------------|--------|----------------------------|---------|--------------------------------|--------|---------------------------------|--------|-------------------------|--------|-----|-----------|--------|------|------|------|
| | | | | | | | | | | | | | | | | | | |
| | | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | | 1 | 2 | 3 | 4 | 5 |
| 22 | Operation on Kidney and Ureter | 600-639 | 260 | 180 | 4,434 | 3,534 | 1·64 | 1·31 | 17·05 | 19·63 | 44 | 41 | M | 15 | 202 | 27 | 6 | 10 |
| 23 | Operation on Bladder and Urethra | 640-669 | 416 | 231 | 5,686 | 3,065 | 2·10 | 1·13 | 13·67 | 13·27 | 54 | 50 | F | 14 | 137 | 23 | 3 | 3 |
| 24 | Operation on Prostrate and Seminal Vesicles | 670-679 | 239 | .... | 5,918 | .... | 2·19 | .... | 24·76 | .... | 71 | .... | F | 15 | 290 | 61 | 43 | 7 |
| 25 | Other Male Genital Organs | 680-699 | 224 | .... | 1,643 | .... | 0·61 | .... | 7·33 | .... | 20 | .... | F | 7 | 162 | 34 | 24 | 4 |
| 26 | On Ovary and Fallopian Tubes | 700-719 | .... | 145 | .... | 1,868 | .... | 0·69 | .... | 12·88 | .... | .... | M | 22 | 197 | 13 | 1 | 6 |
| 27 | On Uterus and Supporting Structures | 720-739 | .... | 892 | .... | 6,969 | .... | 2·58 | .... | 7·81 | .... | 33 | F | .... | .... | .... | .... | 1 |
| 28 | On Vagina, Vulva and Perineum | 740-759 | .... | 273 | .... | 3,168 | .... | 1·17 | .... | 11·60 | .... | 43 | F | 18 | 198 | 6 | 1 | .... |
| 29 | Obstetric Operations (D. and C.) | 760-799 | .... | 2,063 | .... | 18,615 | .... | 6·89 | .... | 9·02 | .... | .... | F | .... | .... | .... | .... | .... |
| 30 | Orthopaedic Surgery | 800-899 | 1,881 | 1,474 | 30,503 | 35,903 | 11·29 | 13·28 | 17·81 | 24·36 | 33 | 47 | M | 116 | 1,938 | 3 | 6 | .... |
| 31 | On Peripheral Blood Vessels and Lymphatic System | 900-929 | 247 | 240 | 6,356 | 4,619 | 2·35 | 1·71 | 25·73 | 19·25 | 51 | 48 | F | 52 | 1,742 | 57 | .... | 30 |
| 32 | On Skin and Subcutaneous Tissues | 930-949 | 1,263 | 736 | 14,357 | 9,183 | 5·31 | 3·40 | 11·37 | 12·48 | 33 | 35 | M | 61 | 1,322 | 51 | 1 | 39 |
| 33 | Other Surgical Procedures.... | 950-999 | 451 | 425 | 7,271 | 8,104 | 2·69 | 3·00 | 16·21 | 19·07 | 39 | 45 | F | 11 | 184 | 32 | 5 | 16 |
| | | | | | | | | | | | | | F | 72 | 1,166 | 22 | .... | 12 |
| | | | | | | | | | | | | | F | 71 | 654 | 7 | .... | 3 |
| | | | | | | | | | | | | | M | 17 | 356 | 37 | 1 | 4 |
| | | | | | | | | | | | | | F | 11 | 354 | 28 | 3 | 29 |
| | Total | | 8,825 | 10,200 | 128,983 | 141,284 | 47·72 | 52·28 | 14·62 | 13·85 | 36 | 38 | | | | | | |
| | Grand Total | | 19,025 | | 270,267 | | 100 | | 14·20 | | 37 | | | 1,761 | 15,428 | 974 | 405 | 457 |

* Operation cases occupied 51·72% of the total bed days. To find the percentage of total beds occupied by the various types of operation cases multiply the percentage figure in columns six and seven by the figure 0·517.

* Results : 1 — Cured
 2 — Improved
 3 — Unchanged
 4 — Investigation only
 5 — Death

ACCIDENTS, POISONINGS AND VIOLENCE, 1967

| Accident | Category Inter-national Classification "E" Code | Number of Patients | | Days in Hospital | | Percentage of Hospital Beds Occupied | | Average Age | | Number Died | |
|--|---|--------------------|--------|------------------|--------|--------------------------------------|--------|-------------|--------|-------------|--------|
| | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| | | | | | | | | | | | |
| Railway Accidents | 800-802 | 22 | 3 | 401 | 167 | 0.08 | 0.03 | 40 | 66 | 2 | ... |
| Motor Vehicle Traffic Accidents | 810-825 | 1,564 | 672 | 23,059 | 9,448 | 4.41 | 1.81 | 29 | 31 | 37 | 13 |
| Motor Vehicle Non-Traffic Accidents | 830-835 | 50 | 22 | 284 | 316 | 0.05 | 0.06 | 28 | 35 | ... | ... |
| Other Road Vehicle Accidents | 840-845 | 94 | 57 | 434 | 650 | 0.08 | 0.12 | 17 | 22 | ... | ... |
| Water Transport Accidents | 850-858 | 14 | 5 | 181 | 136 | 0.03 | 0.03 | 34 | 35 | ... | ... |
| Aircraft Accidents | 860-866 | 2 | ... | 5 | ... | 0.00 | ... | 38 | ... | ... | ... |
| Accidental Poisoning | 870-895 | 194 | 142 | 406 | 376 | 0.08 | 0.07 | 6 | 9 | 1 | 2 |
| Accidental Falls | 900-904 | 933 | 889 | 10,866 | 17,349 | 2.08 | 3.31 | 32 | 49 | 23 | 38 |
| Other Accidents | 910-936 | 1,231 | 521 | 11,181 | 3,680 | 2.14 | 0.70 | 25 | 26 | 8 | 3 |
| Accidents Caused by Hot Substances, Corrosive or Steam | 917 | 114 | 85 | 1,678 | 1,087 | 0.32 | 0.21 | 13 | 11 | 3 | 1 |
| Medical and Surgical Complications and Therapeutic Misadventures | 940-959 | 91 | 89 | 1,573 | 1,170 | 0.30 | 0.22 | 44 | 48 | 5 | 3 |
| Late Effects of Injury | 960-965 | 55 | 34 | 2,145 | 1,222 | 0.41 | 0.23 | 35 | 44 | ... | 1 |
| Suicide and Self-inflicted Injury | 970-979 | 202 | 338 | 1,766 | 2,612 | 0.34 | 0.50 | 37 | 33 | 8 | 5 |
| Homicide and Assault | 980-985 | 206 | 59 | 1,239 | 370 | 0.24 | 0.07 | 36 | 39 | ... | ... |
| Total | | 4,772 | 2,916 | 55,218 | 38,583 | 10.56 | 7.36 | 28 | 35 | 87 | 66 |
| GRAND TOTAL | | 7,688 | | 93,801 | | 17.92 | | 31 | | 153 | |

Derby District Hospital

ALL PATIENTS DISCHARGED, 1967. IN AGE GROUPS

| Age Groups | Number of Cases | | Per cent. of Total | Total Days Stay in Hospital | | Per cent. of Grand Total | Average No. of Days in Hospital | |
|---|-----------------|--------|--------------------------|--------------------------------|--------|--------------------------------|------------------------------------|--------|
| | Male | Female | | Male | Female | | Male | Female |
| Races 1 and 4* | | | | | | | | |
| 00-14.... | 152 | 132 | 25.52 | 564 | 494 | 16.97 | 3.71 | 3.74 |
| 15-19.... | 37 | 31 | 6.11 | 187 | 176 | 5.82 | 5.05 | 5.68 |
| 20-29.... | 197 | 104 | 27.04 | 1,103 | 639 | 27.93 | 5.60 | 6.14 |
| 30-39.... | 132 | 52 | 16.53 | 651 | 300 | 15.25 | 4.93 | 5.77 |
| 40-49.... | 87 | 34 | 10.87 | 551 | 257 | 12.96 | 6.33 | 7.56 |
| 50-59.... | 67 | 20 | 7.81 | 561 | 110 | 10.76 | 8.37 | 5.50 |
| 60-69.... | 45 | 6 | 4.58 | 334 | 14 | 5.58 | 7.42 | 2.33 |
| 70 and over.... | 13 | 3 | 1.44 | 265 | 23 | 4.62 | 20.38 | 7.67 |
| Not known .... | .... | 1 | 0.09 | .... | 7 | 0.11 | .... | .... |
| Total | 730 | 383 | 100.00 | 4,216 | 2,020 | 100.00 | 5.78 | 5.27 |
| Total Male and Female | 1,113 | | 100.00 | 6,236 | | 100.00 | 5.6 | |
| Races 2 and 3 | | | | | | | | |
| 00-14.... | 453 | 356 | 51.46 | 2,640 | 2,113 | 36.76 | 5.83 | 5.94 |
| 15-19.... | 46 | 61 | 6.81 | 370 | 869 | 6.72 | 8.04 | 14.25 |
| 20-29 ... | 76 | 145 | 14.06 | 758 | 1,132 | 14.62 | 9.97 | 7.80 |
| 30-39 ... | 63 | 85 | 9.41 | 595 | 849 | 11.17 | 9.44 | 9.99 |
| 40-49 ... | 42 | 63 | 6.68 | 258 | 663 | 7.12 | 6.14 | 10.52 |
| 50-59 ... | 42 | 24 | 4.20 | 374 | 223 | 4.62 | 8.90 | 9.29 |
| 60-69 .. | 36 | 31 | 4.26 | 490 | 337 | 6.40 | 13.61 | 10.87 |
| 70 and over.... | 25 | 9 | 2.16 | 1,065 | 70 | 8.78 | 42.60 | 7.78 |
| Not known | 6 | 9 | 0.95 | 25 | 100 | 0.97 | 4.16 | 11.11 |
| Total | 789 | 783 | 100.00 | 6,575 | 6,356 | 100.00 | 8.33 | 8.12 |
| Total Male and Female | 1,572 | | 100.00 | 12,931 | | 100.00 | 8.23 | |
| Total Male and Female (All Races) | 2,685 | | 100.00 | 19,167 | | 100.00 | 7.14 | |

* Races 1 and 4 = White
Races 2 and 3 = Aboriginal

Daily Bed Average = 52.5

OPERATION CASES IN AGE GROUPS, 1967

| Age Groups | Number of Cases | | Per cent. of Total | Total Days Stay in Hospital | | Per cent. of Grand Total | Average No. of Days in Hosptial | |
|---|-----------------|--------|--------------------------|--------------------------------|--------|--------------------------------|------------------------------------|--------|
| | Male | Female | | Male | Female | | Male | Female |
| Races 1 and 4 * | | | | | | | | |
| 00-14.... | 29 | 22 | 1.89 | 114 | 163 | 1.44 | 3.93 | 7.41 |
| 14-19.... | 7 | 8 | 0.56 | 83 | 72 | 0.81 | 11.86 | 9.00 |
| 20-29.... | 48 | 20 | 2.53 | 390 | 102 | 2.53 | 8.12 | 5.10 |
| 30-39.... | 17 | 16 | 1.23 | 112 | 88 | 1.04 | 6.59 | 5.50 |
| 40-49.... | 12 | 9 | 0.78 | 93 | 109 | 1.05 | 7.75 | 12.11 |
| 50-59.... | 4 | 4 | 0.30 | 70 | 32 | 0.53 | 17.50 | 8.00 |
| 60-69.... | 6 | .... | 0.22 | 95 | .... | 0.50 | 15.83 | .... |
| 70 and over.... | 3 | 2 | 0.19 | 38 | 19 | 0.30 | 12.67 | 8.00 |
| Total | 126 | 81 | 7.71 | 995 | 585 | 8.24 | 7.90 | 7.22 |
| Total Male and Female | 207 | | 7.71 | 1,580 | | 8.24 | 7.63 | |
| Races 2 and 3 | | | | | | | | |
| 00-14.... | 39 | 33 | 2.68 | 425 | 266 | 3.60 | 10.90 | 8.06 |
| 14-19.... | 9 | 13 | 0.81 | 211 | 156 | 1.91 | 23.44 | 12.00 |
| 20-29.... | 30 | 16 | 1.71 | 387 | 170 | 2.90 | 12.90 | 10.63 |
| 30-39.... | 18 | 15 | 1.23 | 246 | 232 | 2.49 | 13.67 | 15.47 |
| 40-49.... | 10 | 16 | 0.97 | 83 | 172 | 1.33 | 8.30 | 10.75 |
| 50-59.... | 10 | 4 | 0.52 | 134 | 53 | 0.98 | 13.40 | 13.25 |
| 60-69.... | 5 | 3 | 0.30 | 121 | 53 | 0.93 | 24.20 | 17.67 |
| 70 and over.... | 9 | 1 | 0.37 | 240 | 27 | 1.39 | 26.67 | 27.00 |
| Total | 130 | 101 | 8.60 | 1,847 | 1,129 | 15.53 | 14.21 | 11.18 |
| Total Male and Female | 231 | | 8.60 | 2,976 | | 15.53 | 12.88 | |
| Total Male and Female (All Races) | 438 | | 16.31 | 4,556 | | 23.77 | 10.40 | |

* Races 1 and 4 = White
Races 2 and 3 = Aboriginal

Races 1 and 4 — White Patients

PATIENTS DISCHARGED DURING 1967

| Item | Disease | International Classification Categories | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number of Days in Hospital | | Average Age of Patients | | Results* | | | | |
|------|--|---|-----------------|-----|----------------------------|-----|--------------------------|------|------------------------------------|------|-------------------------|------|----------|-----|-----|-----|-----|
| | | | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | | | | | | | | | |
| 1 | Tuberculosis—All forms | 001-019 | 2 | 1 | 11 | 11 | 0.06 | 0.06 | 5.5 | 11.0 | 43.5 | 12.0 | ... | 1 | 1 | ... | ... |
| 2 | Syphilis, Gonorrhoea and Other Venereal Diseases | 020-039 | 2 | ... | 14 | ... | 0.07 | ... | 7.0 | ... | 32.5 | ... | ... | 1 | ... | ... | ... |
| 3 | Other Infectious Diseases | 040-138 | 68 | 51 | 349 | 299 | 1.82 | 1.56 | 5.1 | 5.9 | 22.3 | 15.5 | ... | ... | ... | ... | ... |
| 4 | Malignant Neoplasms, including those of Lymphatic and Haematopoietic Systems | 140-205 | 5 | 1 | 23 | 6 | 0.12 | 0.03 | 4.6 | 6.0 | 57.0 | 1.0 | ... | 1 | 2 | ... | ... |
| 5 | Benign and Unspecified Neoplasms | 210-239 | 5 | 3 | 23 | 25 | 0.12 | 0.13 | 4.6 | 8.3 | 38.4 | 39.3 | ... | ... | 1 | ... | ... |
| 6 | Allergic Disorders | 240-245 | 10 | 4 | 69 | 18 | 0.36 | 0.09 | 6.9 | 4.5 | 29.7 | 23.5 | ... | 3 | ... | ... | ... |
| 7 | Diseases of Thyroid Gland | 250-254 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 10 | ... | ... | ... |
| 8 | Diabetes Mellitus | 260 | 1 | ... | 2 | ... | 0.01 | ... | 2.0 | ... | 41.0 | ... | ... | 4 | ... | ... | ... |
| 9 | Diseases of other Endocrine Glands | 270-277 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 10 | Avitaminoses and other Metabolic Diseases | 280-289 | 2 | ... | 34 | ... | 0.18 | ... | 17.0 | ... | 47.0 | ... | ... | 2 | ... | ... | ... |
| 11 | Diseases of Blood Forming Organs and Blood | 290-299 | 3 | ... | 55 | ... | 0.29 | ... | 18.3 | ... | 55.3 | ... | ... | ... | 3 | ... | ... |
| 12 | Mental Psychoneurotic and Personality Disorders | 300-326 | 23 | 6 | 89 | 27 | 0.46 | 0.14 | 3.9 | 4.5 | 41.0 | 45.2 | ... | 23 | ... | ... | ... |
| 13 | Vascular Lesions Affecting Central Nervous System | 330-334 | 1 | 1 | 58 | 4 | 0.30 | 0.02 | 58.0 | 4.0 | 59.0 | 74.0 | ... | 6 | 1 | ... | ... |
| 14 | Inflammatory and other Diseases of Central Nervous System | 340-357 | 2 | 5 | 9 | 16 | 0.05 | 0.08 | 4.5 | 3.2 | 34.0 | 22.6 | ... | 1 | 2 | ... | ... |
| 15 | Diseases of Nerves and Peripheral Ganglia | 360-369 | 2 | 2 | 14 | 19 | 0.07 | 0.10 | 7.0 | 9.5 | 41.5 | 42.5 | ... | 4 | 4 | ... | ... |
| 16 | Diseases of the Eye | 370-389 | 11 | 7 | 31 | 29 | 0.16 | 0.15 | 2.8 | 4.1 | 25.5 | 18.9 | ... | 11 | 2 | ... | ... |
| 17 | Diseases of Ear and Mastoid Process | 390-398 | 17 | 4 | 85 | 12 | 0.44 | 0.06 | 5.0 | 3.0 | 26.5 | 6.7 | ... | 6 | 17 | ... | ... |
| 18 | Rheumatic Fever and Chronic Rheumatic Heart Disease | 400-416 | 1 | 2 | 62 | 47 | 0.32 | 0.25 | 62.0 | 23.5 | 10.0 | 20.0 | ... | 4 | 1 | ... | ... |
| 19 | Diseases of the Heart and Arteries including Hypertension and Arteriosclerosis | 420-456 | 7 | 1 | 119 | 1 | 0.62 | 0.01 | 17.0 | 1.0 | 58.4 | 31.0 | ... | 2 | 5 | ... | 2 |
| 20 | Diseases of Veins and other Diseases of Circulatory System | 460-468 | 10 | 7 | 60 | 58 | 0.31 | 0.30 | 6.0 | 8.3 | 35.9 | 30.0 | ... | ... | 10 | ... | ... |
| 21 | Diseases of Respiratory System | 470-527 | 71 | 41 | 309 | 154 | 1.61 | 0.80 | 4.3 | 3.8 | 28.2 | 16.1 | ... | 3 | 66 | ... | 2 |
| 22 | Diseases of Buccal Cavity and Oesophagus | 530-539 | 8 | 5 | 18 | 7 | 0.09 | 0.04 | 2.2 | 1.4 | 21.9 | 7.6 | ... | 2 | 39 | ... | ... |
| 23 | Diseases of Stomach and Duodenum | 540-545 | 18 | 5 | 70 | 16 | 0.37 | 0.08 | 3.9 | 3.2 | 38.6 | 33.4 | ... | 3 | 2 | ... | ... |

| | | | | | | | | | | | | | | | | | | | | |
|----|--|-----------|------|------|-----|-----|-------|-------|-------|------|------|------|------|------|---|-----|-----|-----|-----|-----|
| 24 | Appendicitis .... | .... | .... | .... | 12 | 4 | 87 | 27 | 0·45 | 0·14 | 7·2 | 6·7 | 18·7 | 15·5 | M | ... | 12 | ... | ... | ... |
| 25 | Hernia of Abdominal Cavity | .... | .... | .... | 5 | ... | 57 | ... | 0·30 | ... | 11·4 | ... | 37·8 | ... | F | ... | 4 | ... | ... | ... |
| 26 | Other Diseases of Intestines and Peritoneum | .... | .... | .... | 30 | 19 | 84 | 45 | 0·44 | 0·23 | 2·8 | 2·4 | 15·6 | 10·2 | M | ... | ... | ... | ... | ... |
| 27 | Diseases of Liver and Gall Bladder | .... | .... | .... | 5 | 3 | 58 | 7 | 0·30 | 0·04 | 11·6 | 2·3 | 39·4 | 45·0 | F | ... | ... | ... | ... | ... |
| 28 | Diseases of Pancreas | .... | .... | .... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | ... | ... | ... | ... | ... |
| 29 | Nephritis and Nephrosis | .... | .... | .... | 2 | ... | 10 | ... | 0·05 | ... | 5·0 | ... | 9·5 | ... | F | ... | ... | ... | ... | ... |
| 30 | Other Diseases of Urinary System | .... | .... | .... | 15 | 8 | 81 | 45 | 0·42 | 0·23 | 5·4 | 5·6 | 44·3 | 31·7 | M | ... | ... | ... | 2 | ... |
| 31 | Diseases of Male Genital Organs | .... | .... | .... | 11 | ... | 104 | ... | 0·54 | ... | 9·4 | ... | 28·9 | ... | F | ... | ... | ... | ... | ... |
| 32 | Diseases of Breast | .... | .... | .... | ... | 3 | ... | 12 | ... | 0·06 | ... | 4·0 | ... | 24·3 | M | ... | ... | ... | ... | ... |
| 33 | Diseases of Female Genital Organs, Uterus, Ovary, Fallopian Tubes, Parametrium | .... | .... | .... | ... | 24 | ... | 129 | ... | 0·67 | ... | 5·4 | ... | 28·9 | F | ... | ... | ... | ... | ... |
| 34 | Complications of Pregnancy | .... | .... | .... | ... | 5 | ... | 18 | ... | 0·09 | ... | 3·6 | ... | 24·8 | M | ... | ... | ... | ... | ... |
| 35 | Abortion | .... | .... | .... | ... | 3 | ... | 9 | ... | 0·05 | ... | 3·0 | ... | 25·0 | F | ... | ... | ... | ... | ... |
| 36 | Delivery without Mention of Complication | .... | .... | .... | ... | 29 | ... | 259 | ... | 1·35 | ... | 8·9 | ... | 26·2 | M | ... | ... | ... | ... | ... |
| 37 | Delivery with Specified Complication | .... | .... | .... | ... | 9 | ... | 97 | ... | 0·51 | ... | 10·6 | ... | 26·6 | F | ... | ... | ... | ... | ... |
| 38 | Complications of the Puerperium | .... | .... | .... | ... | 3 | ... | 30 | ... | 0·16 | ... | 10·0 | ... | 18·3 | M | ... | ... | ... | ... | ... |
| 39 | Diseases of Skin and Cellular Tissue | .... | .... | .... | 104 | 41 | 683 | 150 | 3·56 | 0·78 | 6·6 | 3·7 | 30·1 | 24·2 | F | ... | ... | ... | 1 | ... |
| 40 | Arthritis and Rheumatism Except Rheumatic Fever | .... | .... | .... | 6 | 5 | 23 | 31 | 0·12 | 0·16 | 3·8 | 6·2 | 46·8 | 44·2 | M | ... | ... | ... | ... | ... |
| 41 | Osteomyelitis and other Bone and Joint Diseases | .... | .... | .... | 17 | 3 | 170 | 44 | 0·89 | 0·23 | 10·0 | 14·7 | 31·2 | 25·7 | F | ... | ... | ... | ... | ... |
| 42 | Other Diseases of Musculoskeletal System | .... | .... | .... | 4 | 1 | 17 | 8 | 0·09 | 0·04 | 4·2 | 8·0 | 42·0 | 51·0 | M | ... | ... | ... | ... | ... |
| 43 | Congenital Malformations | .... | .... | .... | 1 | ... | 1 | ... | 0·01 | ... | 1·0 | ... | 4·0 | ... | F | ... | ... | ... | ... | ... |
| 44 | Birth Injuries, Asphyxia and Infusions of Newborn | .... | .... | .... | 1 | 3 | 15 | 12 | 0·08 | 0·06 | 15·0 | 4·0 | 1·0 | 1·0 | M | ... | ... | ... | ... | ... |
| 45 | Symptoms Referable to Systems or Organs | .... | .... | .... | 48 | 26 | 146 | 68 | 0·76 | 0·35 | 3·0 | 2·6 | 25·9 | 15·2 | F | ... | ... | ... | ... | ... |
| 46 | (Senility) and Ill-Defined Diseases | .... | .... | .... | 17 | ... | 68 | ... | 0·35 | ... | 4·0 | ... | 34·3 | ... | M | ... | ... | ... | ... | ... |
| | Total | .... | .... | .... | 547 | 335 | 2,216 | 1,740 | 16·20 | 9·05 | 4·1 | 5·2 | 29·8 | 21·7 | M | ... | ... | ... | ... | ... |
| | | | | | | | | | | | | | | | F | ... | ... | ... | ... | ... |
| 47 | Fractures of Face and Skull Bones | N800-N804 | | | 5 | 3 | 41 | 4 | 0·21 | 0·02 | 8·2 | 1·3 | 31·0 | 9·7 | M | ... | ... | ... | ... | ... |
| 48 | Fractures and Dislocations of Vertebral Column | N805-N806 | | | 8 | 1 | 57 | 4 | 0·30 | 0·02 | 7·1 | 4·0 | 36·4 | 22·0 | F | ... | ... | ... | ... | ... |

Derby District Hospital

Races 1 and 4

PATIENTS DISCHARGED DURING 1967—continued

| Item | Disease | International Classification Categories | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | Sex | | Results* | | | | |
|------|--|---|-----------------|------|----------------------------|-------|--------------------------|-------|---------------------------------|------|-------------------------|-------|-----|---|----------|-----|------|------|------|
| | | | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | M | F | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | | | | | | | | | | | |
| 49 | Other Fractures of Trunk, Sternum, Larynx and Pelvis | N807-N809 | 4 | .... | 25 | .... | 0.13 | .... | 6.2 | .... | 37.7 | .... | M | F | .... | 4 | .... | .... | .... |
| 50 | Fractures of Upper Limb | N810-N819 | 21 | 5 | 59 | 15 | 0.31 | 0.08 | 2.8 | 3.0 | 24.7 | 18.8 | M | F | .... | 21 | .... | .... | .... |
| 51 | Fractures of Lower Limb | N820-N829 | 13 | 6 | 234 | 150 | 1.22 | 0.78 | 18.0 | 25.0 | 40.2 | 42.3 | M | F | .... | 13 | .... | .... | .... |
| 52 | Dislocation Without Fracture | N830-N839 | .... | 1 | .... | 4 | .... | 0.02 | .... | 4.0 | .... | 31.0 | M | F | .... | 5 | .... | .... | 1 |
| 53 | Sprains and Strains | N840-N848 | 16 | 5 | 107 | 23 | 0.56 | 0.12 | 6.7 | 4.6 | 40.1 | 35.4 | M | F | .... | 1 | .... | .... | .... |
| 54 | Head Injury (Excluding Skull Fracture) | N850-N856 | 13 | 5 | 35 | 16 | 0.18 | 0.08 | 2.7 | 3.2 | 29.3 | 23.8 | M | F | .... | 13 | .... | .... | .... |
| 55 | Internal Injury of Chest, Abdomen and Pelvis | N860-N869 | 2 | .... | 23 | .... | 0.12 | .... | 11.5 | .... | 32.5 | .... | M | F | .... | 2 | .... | .... | .... |
| 56 | Lacerations, Contusions and Superficial Injuries | N870-N929 | 58 | 10 | 293 | 22 | 1.53 | 0.11 | 5.1 | 2.2 | 31.8 | 32.3 | M | F | .... | 58 | .... | .... | .... |
| 57 | Effects of Foreign Body Entering Through Orifice | N930-N936 | 14 | 4 | 80 | 11 | 0.42 | 0.06 | 5.7 | 2.8 | 28.4 | 16.0 | M | F | .... | 10 | .... | .... | .... |
| 58 | Burns | N940-N949 | 9 | 3 | 61 | 23 | 0.32 | 0.12 | 6.8 | 7.7 | 26.8 | 16.7 | M | F | 1 | 3 | .... | .... | .... |
| 59 | Injury to Nerves and Spinal Cord Without Bone Injury | N950-N959 | 1 | .... | 7 | .... | 0.04 | .... | 7.0 | .... | 36.0 | .... | M | F | .... | 3 | .... | .... | .... |
| 60 | Effects of Poisons | N960-N979 | 10 | 2 | 27 | 4 | 0.11 | 0.02 | 2.2 | 2.0 | 23.2 | 2.0 | M | F | .... | 10 | .... | .... | .... |
| 61 | Effects of Exposure and Unspecified Injuries and Reactions | N980-N999 | 5 | 2 | 53 | 3 | 0.28 | 0.02 | 10.6 | 1.5 | 36.2 | 52.0 | M | F | .... | 2 | .... | .... | .... |
| | Total (N Categories) | | 179 | 47 | 1,097 | 279 | 5.73 | 1.45 | 6.1 | 5.9 | 31.6 | 27.0 | M | F | .... | 179 | .... | .... | 1 |
| 62 | Investigations, Observations and Aftercare | Y00-Y10 | 4 | 1 | 11 | 1 | 0.06 | 0.01 | 2.7 | 1.0 | 23.0 | 26.0 | M | F | 1 | 3 | .... | .... | .... |
| | Total (Y Categories) | | 4 | 1 | 11 | 1 | 0.06 | 0.01 | 2.7 | 1.0 | 23.0 | 26.0 | M | F | 1 | 3 | .... | .... | .... |
| | Grand Total | | 730 | 383 | 4,216 | 2,020 | 21.99 | 10.51 | 5.78 | 5.27 | 30.21 | 22.36 | M | F | 11 | 707 | 8 | .... | 4 |
| | | | | | | | | | | | | | | | 54 | 326 | 1 | .... | 2 |

* Results : 1 — Cured
2 — Improved
3 — Unchanged
4 — Investigation only
5 — Death

OPERATION CASES DISCHARGED, 1967

Races 1 and 4

| Item | Operation | Code of Surgical Operations | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | Results* | | | | |
|------|--|-----------------------------|-----------------|--------|----------------------------|--------|--------------------------|--------|---------------------------------|--------|-------------------------|--------|----------|-----|-----|-----|-----|
| | | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | | | | | | | | | |
| 1 | Neurosurgery, Brain and Cerebral Meninges | 001-019 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 2 | Neurosurgery, Spinal Cord and Spinal Meninges | 020-029 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 3 | Neurosurgery. Peripheral Nerves and Sympathetic System | 030-049 | 1 | ... | 1 | ... | 0.02 | ... | 1.0 | ... | 73.0 | ... | ... | 1 | ... | ... | ... |
| 4 | Thyroid and Parathyroid | 070-079 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 5 | Adrenals | 080-084 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 6 | Pituitary, Thymus and Other Endocrine Organs | 085-096 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 7 | Ophthalmic Operations | 100-199 | 3 | 1 | 18 | 5 | 0.40 | 0.11 | 6.0 | 5.0 | 37.6 | 28.0 | ... | 3 | ... | ... | ... |
| 8 | Ear, Nose and Throat | 200-249 | 4 | 4 | 26 | 11 | 0.57 | 0.24 | 6.5 | 2.8 | 29.2 | 10.2 | ... | 4 | ... | ... | ... |
| 9 | Teeth and Gums | 250-259 | 5 | 4 | 10 | 5 | 0.22 | 0.11 | 2.0 | 1.2 | 14.8 | 9.2 | ... | 3 | ... | ... | ... |
| 10 | Pharynx, Tongue, Palate and Buccal Cavity | 260-299 | 5 | 5 | 21 | 24 | 0.46 | 0.53 | 4.2 | 4.8 | 7.8 | 9.2 | ... | 1 | ... | ... | ... |
| 11 | Heart and Pericardium and Intrathoracic Great Vessels | 300-329 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 12 | Lung, Bronchus and Mediastinum and Collapse Therapy | 330-354 | 2 | ... | 29 | ... | 0.64 | ... | 14.5 | ... | 32.0 | ... | ... | ... | ... | ... | 1 |
| 13 | Operations on Breast | 380-389 | ... | 2 | ... | 11 | ... | 0.24 | ... | 5.5 | ... | 24.5 | ... | ... | ... | ... | ... |
| 14 | Operations on Abdominal Wall | 400-419 | 5 | 2 | 68 | 23 | 1.49 | 0.51 | 13.6 | 11.5 | 37.0 | 26.2 | ... | 2 | ... | ... | ... |
| 15 | Operations on Stomach | 420-439 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 16 | Operations on Appendix | 440-449 | 8 | 4 | 79 | 33 | 1.73 | 0.72 | 9.9 | 8.2 | 20.0 | 19.8 | ... | ... | 8 | ... | ... |
| 17 | Operations on Intestines (Except Appendix and Rectum) | 450-469 | 1 | ... | 10 | ... | 0.22 | ... | 10.0 | ... | 30.0 | ... | ... | ... | 4 | ... | ... |
| 18 | Operation on Rectum and Anus | 470-499 | 2 | 1 | 14 | 1 | 0.31 | 0.02 | 7.0 | 1.0 | 27.0 | 44.0 | ... | ... | 1 | ... | ... |
| 19 | Operations on Liver and Bile Ducts | 500-529 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 20 | Operation on Pancreas | 530-539 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 21 | Operation on Spleen | 540-549 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

Derby District Hospital

Races 1 and 4

OPERATION CASES DISCHARGED, 1967—continued

| Item | Operation | Code of Surgical Operations | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | Sex | Results* | | | | | |
|------|--|-----------------------------|-----------------|-----|----------------------------|-----|--------------------------|-------|---------------------------------|------|-------------------------|-------|-----|----------|-----|-----|-----|-----|-----|
| | | | M. | F. | M. | F. | M. | F. | M. | F. | M. | F. | | 1 | 2 | 3 | 4 | 5 | |
| | | | | | | | | | | | | | | | | | | | |
| 22 | Operation on Kidney and Ureter ... | 600-639 | 1 | ... | 5 | ... | 0.11 | ... | 5.0 | ... | 32.0 | ... | M | ... | 1 | ... | ... | ... | ... |
| 23 | Operation on Bladder and Urethra | 640-669 | 3 | ... | 18 | ... | 0.40 | ... | 6.0 | ... | 69.3 | ... | M | ... | ... | ... | ... | ... | ... |
| 24 | Operation on Prostrate and Seminal Vesicles | 670-679 | 1 | ... | 30 | ... | 0.66 | ... | 30.0 | ... | 78.0 | ... | M | ... | 1 | ... | ... | ... | ... |
| 25 | Other Male Genital Organs ... | 680-699 | 8 | ... | 67 | ... | 1.47 | ... | 8.4 | ... | 14.7 | ... | M | ... | 1 | ... | ... | ... | ... |
| 26 | On Ovary and Fallopian Tubes ... | 700-719 | ... | 2 | ... | 16 | ... | 0.35 | ... | 8.0 | ... | 36.5 | M | ... | ... | ... | ... | ... | ... |
| 27 | On Uterus and Supporting Structures | 720-739 | ... | 12 | ... | 69 | ... | 1.52 | ... | 5.7 | ... | 32.5 | F | ... | 2 | ... | ... | ... | ... |
| 28 | On Vagina, Vulva and Perineum ... | 740-759 | ... | 2 | ... | 11 | ... | 0.24 | ... | 5.5 | ... | 40.0 | M | ... | 1 | ... | ... | ... | ... |
| 29 | Obstetric Operations (D and C) ... | 760-799 | ... | 5 | ... | 38 | ... | 0.83 | ... | 7.6 | ... | 22.6 | F | ... | 2 | ... | ... | ... | ... |
| 30 | Orthopaedic Surgery ... | 800-899 | 22 | 8 | 238 | 177 | 5.23 | 3.89 | 10.8 | 22.1 | 29.9 | 43.6 | M | ... | 4 | ... | ... | ... | 1 |
| 31 | On Peripheral Blood Vessels and Lymphatic System | 900-929 | 1 | 3 | 10 | 36 | 0.22 | 0.79 | 10.0 | 12.0 | 21.0 | 41.0 | F | ... | ... | ... | ... | ... | ... |
| 32 | On Skin and Subcutaneous Tissues | 930-949 | 52 | 25 | 337 | 123 | 7.40 | 2.70 | 6.5 | 4.9 | 24.6 | 21.2 | M | ... | 4 | ... | ... | ... | ... |
| 33 | Other Surgical Procedures ... | 950-999 | 2 | 1 | 14 | 2 | 0.31 | 0.04 | 7.0 | 2.0 | 31.0 | 43.0 | F | ... | ... | ... | ... | ... | ... |
| | Total | | 126 | 81 | 995 | 585 | 21.84 | 12.84 | 7.90 | 7.22 | 26.71 | 25.65 | M | 10 | 115 | ... | ... | ... | 1 |
| | | | | | | | | | | | | | F | 15 | 65 | ... | ... | ... | 1 |

* Results : 1 — Cured
2 — Improved
3 — Unchanged
4 — Investigation only
5 — Death

Operation cases occupied 8.24 per cent. of the total bed days. To find the percentage of total beds occupied by the various types of operation cases multiply the percentage figure in column 6 by the figure 0.082%.

Races 2 and 3—Aboriginal Patients

PATIENTS DISCHARGED DURING 1967

| Item | Disease | International Classification Categories | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | Results* | | | | |
|------|--|---|-----------------|--------|----------------------------|--------|--------------------------|--------|---------------------------------|--------|-------------------------|--------|----------|------|------|------|------|
| | | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | | | | | | | | | |
| 1 | Tuberculosis—All forms | 001-019 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| 2 | Syphilis, Gonorrhoea and Other Venereal Diseases | 020-039 | 3 | .... | 26 | .... | 0.14 | .... | 8.7 | .... | 37.7 | .... | .... | 3 | .... | .... | .... |
| 3 | Other Infectious Diseases | 040-138 | 107 | 120 | 719 | 1,166 | 3.75 | 6.08 | 6.7 | 9.7 | 9.2 | 10.2 | 2 | 102 | 2 | .... | 1 |
| 4 | Malignant Neoplasms Including those of Lymphatic and Haematopoietic Systems | 140-205 | 2 | 4 | 36 | 68 | 0.19 | 0.35 | 18.0 | 17.0 | 39.0 | 53.7 | 1 | 112 | 3 | .... | 4 |
| 5 | Benign and Unspecified Neoplasms | 210-239 | 2 | 4 | 24 | 70 | 0.13 | 0.37 | 12.0 | 17.5 | 17.5 | 25.2 | .... | 2 | .... | .... | .... |
| 6 | Allergic Disorders | 240-245 | 5 | 9 | 16 | 31 | 0.08 | 0.16 | 3.2 | 3.4 | 9.6 | 25.7 | 1 | 2 | 1 | .... | .... |
| 7 | Diseases of Thyroid Gland | 250-254 | 1 | 1 | 113 | 13 | 0.59 | 0.07 | 113.0 | 13.0 | 21.0 | 36.0 | .... | 9 | .... | .... | .... |
| 8 | Diabetes Mellitus | 260 | 5 | 3 | 53 | 15 | 0.28 | 0.08 | 10.6 | 5.0 | 63.4 | 43.3 | .... | 1 | .... | .... | 1 |
| 9 | Diseases of Other Endocrine Glands | 270-277 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 3 | .... | .... | .... |
| 10 | Avitaminoses and Other Metabolic Diseases | 280-289 | 3 | .... | 83 | .... | 0.43 | .... | 27.7 | .... | 37.7 | .... | .... | 2 | 1 | .... | .... |
| 11 | Diseases of Blood Forming Organs and Blood | 290-299 | 2 | 1 | 20 | 4 | 0.10 | 0.02 | 10.0 | 4.0 | 10.0 | 23.0 | .... | 2 | .... | .... | .... |
| 12 | Mental, Psychoneurotic and Personality Disorders | 300-326 | .... | 4 | .... | 39 | .... | 0.20 | .... | 9.7 | .... | 41.7 | .... | 1 | .... | .... | .... |
| 13 | Vascular Lesions Affecting Central Nervous System | 330-334 | 2 | 1 | 52 | 14 | 0.27 | 0.07 | 26.0 | 14.0 | 69.5 | 47.0 | .... | 4 | .... | .... | 1 |
| 14 | Inflammatory and Other Diseases of Central Nervous System | 340-357 | 8 | 4 | 127 | 33 | 0.66 | 0.17 | 15.9 | 8.2 | 17.5 | 15.2 | .... | 1 | 1 | .... | 1 |
| 15 | Diseases of Nervous and Peripheral Ganglia | 360-369 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 7 | .... | .... | .... |
| 16 | Diseases of the Eye | 370-389 | 16 | 11 | 65 | 106 | 0.34 | 0.55 | 4.1 | 9.6 | 15.0 | 30.0 | .... | 4 | .... | .... | .... |
| 17 | Diseases of Ear and Mastoid Process | 390-398 | 20 | 14 | 97 | 70 | 0.51 | 0.37 | 4.8 | 5.0 | 2.8 | 3.4 | 1 | 15 | 1 | .... | .... |
| 18 | Rheumatic Fever and Chronic Rheumatic Heart Disease | 400-416 | 3 | .... | 55 | .... | 0.29 | .... | 18.3 | .... | 17.3 | .... | .... | 10 | .... | .... | .... |
| 19 | Diseases of the Heart and Arteries Including Hypertension and Arteriosclerosis | 420-456 | 11 | 4 | 167 | 23 | 0.87 | 0.12 | 15.2 | 5.7 | 63.6 | 54.5 | .... | 19 | .... | .... | 3 |
| 20 | Diseases of Veins and Other Diseases of Circulatory System | 460-468 | 3 | 5 | 12 | 79 | 0.06 | 0.41 | 4.0 | 15.8 | 17.7 | 19.6 | .... | 3 | .... | .... | .... |

Races 2 and 3

Derby District Hospital

Races 2 and 3

ABORIGINAL PATIENTS DISCHARGED DURING 1967—continued

| Item | Disease | Inter-national Classifi- cation Categories | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | Sex | | Results* | | | | |
|------|--|---|--------------------|--------|-------------------------------|--------|-----------------------------|--------|------------------------------------|--------|----------------------------|--------|-----|--|----------|-----|-----|-----|-----|
| | | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | Sex | | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | | | | | | | | | | | |
| 21 | Diseases of Respiratory System ... | 470-527 | 160 | 139 | 1,383 | 737 | 7·22 | 3·85 | 8·6 | 5·3 | 12·5 | 16·1 | M | | 1 | 156 | ... | ... | 3 |
| 22 | Diseases of Buccal Cavity and Oesophagus | 530-539 | 9 | 4 | 30 | 39 | 0·16 | 0·20 | 3·3 | 9·7 | 24·1 | 30·2 | F | | 2 | 134 | 1 | ... | 2 |
| 23 | Diseases of Stomach and Duodenum | 540-545 | 4 | ... | 13 | ... | 0·07 | ... | 3·2 | ... | 14·3 | ... | M | | 1 | 8 | ... | ... | ... |
| 24 | Appendicitis ... | 550-553 | 5 | ... | 30 | ... | 0·16 | ... | 6·0 | ... | 24·6 | ... | F | | ... | 4 | ... | ... | ... |
| 25 | Hernia of Abdominal Cavity ... | 560-561 | 6 | 2 | 49 | 37 | 0·26 | 0·19 | 8·1 | 18·5 | 38·7 | 18·5 | M | | ... | ... | ... | ... | ... |
| 26 | Other Diseases of Intestines and Peritoneum | 570-578 | 51 | 51 | 331 | 308 | 1·73 | 1·61 | 6·5 | 6·0 | 3·5 | 5·3 | F | | 1 | 50 | ... | ... | ... |
| 27 | Diseases of Liver and Gall Bladder | 580-586 | 6 | 4 | 64 | 35 | 0·33 | 0·18 | 10·7 | 8·7 | 48·2 | 39·7 | M | | ... | 51 | ... | ... | 1 |
| 28 | Diseases of Pancreas ... | 587 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | F | | ... | 4 | ... | ... | ... |
| 29 | Nephritis and Nephrosis ... | 590-594 | 1 | 2 | 75 | 8 | 0·39 | 0·04 | 75·0 | 4·0 | 25·0 | 8·0 | M | | ... | 1 | ... | ... | ... |
| 30 | Other Diseases of Urinary System | 600-609 | 10 | 14 | 64 | 89 | 0·33 | 0·46 | 6·4 | 6·4 | 32·4 | 34·9 | F | | ... | 2 | ... | ... | 1 |
| 31 | Diseases of Male Genital Organs ... | 610-617 | 8 | ... | 137 | ... | 0·71 | ... | 17·1 | ... | 38·2 | ... | M | | ... | 8 | 1 | ... | ... |
| 32 | Diseases of Breast ... | 620-621 | ... | 8 | ... | 52 | ... | 0·27 | ... | 6·5 | ... | 25·0 | F | | ... | ... | ... | ... | ... |
| 33 | Diseases of Female Genital Organs, Uterus, Ovary, Fallopian Tubes, Parametrium | 622-637 | ... | 16 | ... | 116 | ... | 0·61 | ... | 7·3 | ... | 30·6 | M | | ... | 8 | ... | ... | ... |
| 34 | Complications of Pregnancy ... | 640-649 | ... | 36 | ... | 214 | ... | 1·12 | ... | 5·9 | ... | 26·4 | M | | ... | ... | ... | ... | ... |
| 35 | Abortion ... | 650-652 | ... | 13 | ... | 51 | ... | 0·27 | ... | 3·9 | ... | 25·6 | F | | ... | 36 | ... | ... | ... |
| 36 | Delivery Without Mention of Complication | 660 | ... | 79 | ... | 881 | ... | 4·60 | ... | 11·2 | ... | 26·7 | M | | 13 | ... | ... | ... | ... |
| 37 | Delivery With Specified Complication | 670-678 | ... | 43 | ... | 493 | ... | 2·57 | ... | 11·5 | ... | 26·3 | F | | 79 | ... | ... | ... | ... |
| 38 | Complications of the Puerperium | 680-689 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | | 43 | ... | ... | ... | ... |
| 39 | Diseases of Skin and Cellular Tissue | 690-716 | 104 | 72 | 807 | 576 | 4·21 | 3·01 | 7·8 | 8·0 | 22·0 | 16·3 | F | | ... | 103 | ... | ... | ... |
| 40 | Arthritis and Rheumatism Except Rheumatic Fever | 720-727 | 2 | 1 | 15 | 3 | 0·08 | 0·02 | 7·5 | 3·0 | 32·0 | 40·0 | M | | ... | 72 | ... | ... | ... |
| 41 | Osteomyelitis and Other Bone and Joint Diseases | 730-738 | 12 | 5 | 170 | 33 | 0·89 | 0·17 | 14·2 | 6·6 | 28·3 | 30·2 | F | | ... | 1 | ... | ... | ... |
| 42 | Other Diseases of Musculoskeletal System | 740-749 | 5 | 2 | 22 | 4 | 0·11 | 0·02 | 4·4 | 2·0 | 19·8 | 42·5 | M | | ... | 4 | 1 | ... | ... |

| | | | | | | | | | | | | | | | | | |
|----|--|-----------|------|------|-------|-------|-------|-------|------|------|-------|-------|--------|------------|------------|-------|---------|
| 43 | Congenital Malformations | 750-759 | 1 | 2 | 17 | 40 | 0-09 | 0-21 | 17-0 | 20-0 | 31-0 | 1-0 | M F | 1 | 2 ..... | ..... | ..... |
| 44 | Birth Injuries, Asphyxia and Infections of Newborn | 760-776 | 5 | 6 | 101 | 111 | 0-53 | 0-58 | 20-2 | 18-5 | 1-0 | 1-0 | M F | 5 3 | 3 1 | ..... | ..... |
| 45 | Symptoms Referable to Systems or Organs | 780-789 | 43 | 26 | 299 | 102 | 1-56 | 0-53 | 6-9 | 3-9 | 20-2 | 23-3 | M F | 42 25 | 1 1 | ..... | ..... |
| 46 | (Senility) and Ill-Defined Diseases | 790-795 | 6 | 6 | 40 | 80 | 0-21 | 0-42 | 6-7 | 13-3 | 59-7 | 43-2 | M F | 6 6 | ..... | ..... | ..... |
| | Total | ..... | 631 | 716 | 5,312 | 5,750 | 27-74 | 29-95 | 8-4 | 8-0 | 17-3 | 19-3 | M F | 604 552 | 9 15 | ..... | 11 7 |
| 47 | Fractures of Face and Skull Bones | N800-N804 | 5 | .... | 26 | .... | 0-14 | .... | 5-2 | .... | 21-0 | .... | M F | 5 ..... | ..... | ..... | ..... |
| 48 | Fractures and Dislocations of Vertebral Column | N805-N806 | 2 | 2 | 12 | 11 | 0-06 | 0-06 | 6-0 | 5-5 | 39-5 | 52-5 | M F | 2 2 | ..... | ..... | ..... |
| 49 | Other Fractures of Trunk, Sternum, Larynx and Pelvis | N807-N809 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | M F | .... | ..... | ..... | ..... |
| 50 | Fractures of Upper Limb | N810-N819 | 23 | 12 | 149 | 120 | 0-78 | 0-63 | 6-5 | 10-0 | 30-9 | 14-8 | M F | 23 12 | ..... | ..... | ..... |
| 51 | Fractures of Lower Limb | N820-N829 | 17 | 7 | 362 | 71 | 1-89 | 0-37 | 21-3 | 10-1 | 27-9 | 20-4 | M F | 16 6 | ..... | ..... | 1 |
| 52 | Dislocation Without Fracture | N830-N839 | 4 | 2 | 15 | 3 | 0-08 | 0-02 | 3-8 | 1-5 | 23-8 | 21-5 | M F | 4 2 | ..... | ..... | ..... |
| 53 | Sprains and Strains | N840-N848 | 13 | .... | 72 | .... | 0-38 | .... | 5-5 | .... | 33-5 | .... | M F | 13 .... | ..... | ..... | ..... |
| 54 | Head Injury (Excluding Skull Fracture) | N850-N856 | 7 | 4 | 11 | 8 | 0-06 | 0-04 | 1-6 | 2-0 | 26-9 | 18-5 | M F | 7 4 | ..... | ..... | ..... |
| 55 | Internal Injury of Chest, Abdomen and Pelvis | N860-N869 | 1 | 1 | 10 | 14 | 0-05 | 0-07 | 10-0 | 14-0 | 17-0 | 32-0 | M F | 1 1 | ..... | ..... | ..... |
| 56 | Lacerations, Contusions and Superficial Injuries | N870-N929 | 43 | 16 | 276 | 87 | 1-44 | 0-45 | 6-4 | 5-4 | 24-0 | 28-6 | M F | 42 16 | 1 ..... | ..... | ..... |
| 57 | Effects of Foreign Body Entering Through Orifice | N930-N936 | 5 | 3 | 11 | 14 | 0-06 | 0-07 | 2-2 | 4-7 | 12-2 | 6-3 | M F | 5 3 | ..... | ..... | ..... |
| 58 | Burns | N940-N949 | 8 | 7 | 185 | 199 | 0-97 | 1-04 | 2-3 | 28-4 | 18-8 | 18-7 | M F | 8 6 | ..... | ..... | ..... |
| 59 | Injury to Nerves and Spinal Cord Without Bone Injury | N950-N959 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | M F | .... | ..... | ..... | ..... |
| 60 | Effects of Poisons | N960-N979 | 10 | 3 | 22 | 7 | 0-11 | 0-04 | 2-2 | 2-3 | 4-4 | 16-0 | M F | 10 3 | ..... | ..... | ..... |
| 61 | Effects of Exposure and Unspecified Injuries and Reactions | N980-N999 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | M F | .... | ..... | ..... | ..... |
| | Total (N Categories) | ..... | 138 | 57 | 1,151 | 526 | 6-02 | 2-79 | 8-3 | 9-2 | 24-6 | 21-6 | M F | 136 55 | 1 ..... | ..... | 1 1 |
| 62 | Investigations, Observations and Aftercare | Y00-Y10 | 20 | 10 | 112 | 80 | 0-58 | 0-42 | 5-6 | 8-0 | 17-2 | 18-8 | M F | 9 8 | ..... | ..... | ..... |
| | Total (Y Categories) | ..... | 20 | 10 | 112 | 80 | 0-58 | 0-42 | 5-6 | 8-0 | 17-2 | 18-8 | M F | 9 8 | ..... | ..... | ..... |
| | Grand Total | ..... | 789 | 783 | 6,575 | 6,356 | 34-34 | 33-16 | 8-33 | 8-12 | 18-55 | 19-44 | M F | 749 615 | 10 15 | ..... | 12 8 |

*Results : 1. Cured
2. Improved
3. Unchanged
4. Investigation only
5. Death

Races 2 and 3

OPERATION CASES DISCHARGED DURING 1967

| Item | Operation | Code of Surgical Operations | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Number Days in Hospital | | Average Age of Patients | | Sex | | Results* | | | | |
|------|--|-----------------------------|-----------------|--------|----------------------------|--------|--------------------------|--------|---------------------------------|--------|-------------------------|--------|-----|---|----------|-----|-----|-----|-----|
| | | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female | M | F | 1 | 2 | 3 | 4 | 5 |
| | | | | | | | | | | | | | | | | | | | |
| 1 | Neurosurgery, Brain and Cerebral Meninges | 001-019 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |
| 2 | Neurosurgery, Spinal Cord and Spinal Meninges | 020-029 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |
| 3 | Neurosurgery, Peripheral Nerves and Sympathetic System | 030-049 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |
| 4 | Thyroid and Parathyroid | 070-079 | ... | 1 | ... | 13 | ... | 0.29 | ... | 13.0 | ... | 36.0 | M | F | ... | 1 | ... | ... | ... |
| 5 | Adrenals | 080-084 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |
| 6 | Pituitary, Thymus and Other Endocrine Organs | 085-096 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |
| 7 | Ophthalmic Operations | 100-199 | 4 | 7 | 42 | 116 | 0.92 | 2.55 | 10.5 | 16.6 | 51.0 | 38.0 | M | F | ... | 4 | ... | ... | ... |
| 8 | Ear, Nose and Throat | 200-249 | 1 | 5 | 1 | 52 | 0.02 | 1.14 | 01.0 | 10.4 | 5.0 | 14.4 | M | F | 1 | 6 | ... | ... | ... |
| 9 | Teeth and Gums | 250-259 | 2 | ... | 11 | ... | 0.24 | ... | 05.5 | ... | 34.5 | ... | M | F | ... | 5 | ... | ... | ... |
| 10 | Pharynx, Tongue, Palate and Buccal Cavity | 260-299 | 1 | 5 | 8 | 40 | 0.18 | 0.88 | 08.0 | 8.0 | 15.0 | 10.4 | M | F | ... | 1 | ... | ... | ... |
| 11 | Heart and Pericardium and Intrathoracic Great Vessels | 300-329 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | 3 | ... | ... | ... |
| 12 | Lung, Bronchus and Mediastinum and Collapse Therapy | 330-354 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |
| 13 | Operations on Breast | 380-389 | ... | 1 | ... | 16 | ... | 0.35 | ... | 16.0 | ... | 48.0 | M | F | ... | ... | ... | ... | ... |
| 14 | Operations on Abdominal Wall | 400-419 | 5 | 7 | 61 | 100 | 1.34 | 2.20 | 12.2 | 14.3 | 48.4 | 30.1 | M | F | ... | 1 | ... | ... | 1 |
| 15 | Operations on Stomach | 420-439 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | 6 | ... | ... | ... |
| 16 | Operations on Appendix | 440-449 | 3 | ... | 30 | ... | 0.66 | ... | 10.0 | ... | 29.3 | ... | M | F | ... | 2 | ... | ... | ... |
| 17 | Operations on Intestines (except Appendix and Rectum) | 450-469 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |
| 18 | Operation on Rectum and Anus | 470-499 | 1 | ... | 34 | ... | 0.75 | ... | 34.0 | ... | 70.0 | ... | M | F | ... | 1 | ... | ... | ... |
| 19 | Operations on Liver and Bile Ducts | 500-529 | ... | 1 | ... | 15 | ... | 0.33 | ... | 15.0 | ... | 36.0 | M | F | ... | 1 | ... | ... | ... |
| 20 | Operation on Pancreas | 530-539 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | F | ... | ... | ... | ... | ... |

| | | | | | | | | | | | | | | | | | | |
|-------|--|---------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-----|---|-----|-----|-----|-----|-----|
| 21 | Operation on Spleen | 540-549 | 1 | ... | 3 | ... | 0.07 | ... | 3.0 | ... | 21.0 | ... | M | ... | ... | ... | ... | 1 |
| 22 | Operation on Kidney and Ureter | 600-639 | 1 | ... | 75 | ... | 1.65 | ... | 75.0 | ... | 25.0 | ... | M | ... | ... | ... | ... | ... |
| 23 | Operation on Bladder and Urethra | 640-669 | 6 | ... | 162 | ... | 3.56 | ... | 27.0 | ... | 53.6 | ... | M | ... | ... | ... | ... | ... |
| 24 | Operation on Prostrate and Seminal Vesicles | 670-679 | 4 | ... | 130 | ... | 2.85 | ... | 32.5 | ... | 71.5 | ... | M | ... | ... | ... | ... | ... |
| 25 | Other Male Genital Organs | 680-699 | 13 | ... | 55 | ... | 1.21 | ... | 4.2 | ... | 14.2 | ... | M | ... | ... | ... | ... | ... |
| 26 | On Ovary and Fallopian Tubes | 700-719 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | ... | ... | ... | ... | ... |
| 27 | On Uterus and Supporting Structures | 720-739 | ... | 5 | ... | 97 | ... | ... | ... | ... | ... | ... | M | ... | ... | ... | ... | ... |
| 28 | On Vagina, Vulva and Perineum | 740-759 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | M | ... | ... | ... | ... | ... |
| 29 | Obstetric Operations (D and C) | 760-799 | ... | 11 | ... | 111 | ... | ... | ... | ... | ... | ... | M | ... | ... | ... | ... | ... |
| 30 | Orthopaedic Surgery | 800-899 | 30 | 16 | 518 | 123 | 11.37 | 2.70 | 17.3 | 7.7 | 27.5 | ... | M | ... | ... | ... | ... | ... |
| 31 | On Peripheral Blood Vessels and Lymphatic System | 900-929 | ... | 2 | ... | 36 | ... | 0.79 | ... | 18.0 | ... | ... | M | ... | ... | ... | ... | ... |
| 32 | On Skin and Subcutaneous Tissues | 930-949 | 56 | 39 | 695 | 404 | 15.26 | 8.85 | 12.4 | 10.4 | 23.3 | ... | M | ... | ... | ... | ... | ... |
| 33 | Other Surgical Procedures | 950-999 | 2 | 1 | 22 | 6 | 0.48 | 0.13 | 11.0 | 6.0 | 34.5 | ... | M | ... | ... | ... | ... | ... |
| Total | | | 130 | 101 | 1,847 | 1,129 | 40.56 | 24.77 | 14.21 | 11.18 | 28.70 | ... | M | ... | ... | ... | ... | ... |
| | | | | | | | | | | | | | F | ... | ... | ... | ... | ... |

Operation cases occupied 15.53 per cent. of the total bed days. To find percentage of total beds occupied by various types of operation cases, multiply the percentage figure in column 6 by the figure 0.155 per cent.

* Result : 1 — Cured
2 — Improved
3 — Unchanged
4 — Investigation only
5 — Death

ACCIDENTS, POISONINGS AND VIOLENCE, 1967

| Accidents | Category International Classification E Code | Number of Cases | | Number of Days in Hospital | | Per cent. of Grand Total | | Average Age | | Number Died | |
|--|---|--------------------|--------|-------------------------------|--------|-----------------------------|--------|----------------|--------|----------------|--------|
| | | Male | Female | Male | Female | Male | Female | Male | Female | Male | Female |
| Races 1 and 4— | | | | | | | | | | | |
| Railway Accidents | 800-802 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Motor Vehicle Traffic Accidents | 810-825 | 11 | 2 | 46 | 66 | 0.24 | 0.34 | 25 | 44 | ... | ... |
| Motor Vehicle Non-Traffic Accidents | 830-835 | 4 | ... | 29 | ... | 0.15 | ... | 50 | ... | ... | ... |
| Other Road Vehicle Accidents | 840-845 | 1 | ... | 2 | ... | 0.01 | ... | 54 | ... | ... | ... |
| Water Transport Accidents | 850-858 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Aircraft Accidents | 860-866 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Accidental Poisoning | 870-895 | 6 | 2 | 14 | 4 | 0.07 | 0.02 | 18 | 2 | ... | ... |
| Accidental Falls | 900-904 | 21 | 17 | 184 | 121 | 0.96 | 0.63 | 31 | 28 | ... | 1 |
| Other Accidents | 910-936 | 124 | 21 | 771 | 63 | 4.02 | 0.33 | 33 | 27 | ... | ... |
| Accidents Caused by Hot Substances, Corrosive or Steam | 917 | 8 | 3 | 42 | 23 | 0.22 | 0.12 | 27 | 17 | ... | ... |
| Medical and Surgical Complications and Therapeutic | | | | | | | | | | | |
| Misadventures | 940-959 | ... | 1 | ... | 1 | ... | 0.01 | ... | 13 | ... | ... |
| Late Effects of Injury | 960-965 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Suicide and Self-inflicted Injury | 970-979 | 3 | ... | 4 | ... | 0.02 | ... | 25 | ... | ... | ... |
| Homicide and Assault | 980-985 | 1 | 1 | 5 | 1 | 0.03 | 0.01 | 52 | 27 | ... | ... |
| TOTAL : Male | | 179 | 47 | 1,097 | 279 | 5.72 | 1.46 | 32 | 27 | ... | 1 |
| Female | | | | | | | | | | | |
| Races 2 and 3 | | | | | | | | | | | |
| Railway Accidents | 800-802 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Motor Vehicle Traffic Accidents | 810-825 | 4 | ... | 18 | ... | 0.09 | ... | 19 | ... | ... | 1 |
| Motor Vehicle Non-Traffic Accidents | 830-835 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Other Road Vehicle Accidents | 840-845 | 1 | ... | 10 | ... | ... | ... | ... | ... | ... | ... |
| Water Transport Accidents | 850-858 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Aircraft Accidents | 860-866 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Accidental Poisoning | 870-895 | 8 | ... | 20 | ... | 0.10 | ... | 5 | ... | ... | ... |
| Accidental Falls | 900-904 | 18 | 1 | 83 | 2 | 0.43 | 0.01 | 22 | 1 | ... | ... |
| Other Accidents | 910-936 | 97 | 14 | 841 | 64 | 4.39 | 0.33 | 27 | 14 | ... | ... |
| Accidents Caused by Hot Substances, Corrosive or Steam | 917 | 7 | 37 | 164 | 364 | 0.86 | 1.90 | 18 | 27 | ... | ... |
| Medical and Surgical Complications and Therapeutic | | | | | | | | | | | |
| Misadventures | 940-959 | ... | 4 | ... | 10 | ... | 0.52 | ... | 12 | ... | 1 |
| Late Effects of Injury | 960-965 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Suicide and Self-inflicted Injury | 970-979 | 1 | ... | 1 | ... | 0.01 | ... | 2 | ... | ... | ... |
| Homicide and Assault | 980-985 | 2 | 1 | 14 | 4 | 0.07 | 0.02 | 37 | 1 | ... | ... |
| Total : Male | | 138 | 57 | 1,151 | 534 | 6.00 | 2.78 | 25 | 22 | ... | 1 |
| Female | | | | | | | | | | | |

Derby Leprosarium, Western Australia

Admissions and Discharges for the Year 1967, compiled from the Monthly Returns of the Superintendent

| Month | Admissions | | | | | Discharges | | | | | | | | Inmates Remaining in Leprosarium | | | |
|-----------|------------|-------------|-------------|----------|-------------|---------------|------------------|----------|-----------|---------------------------|------------------------|---------------------------|--------------------------|----------------------------------|-------|---------|-----------------|
| | Males | | Females | | | Males | | | | Females | | | | Total Discharged | Males | Females | Total Remaining |
| | Admitted | Re-Admitted | Total Males | Admitted | Re-Admitted | Total Females | Discharged Cured | Deceased | Absconded | Discharged Non-Infectious | Total Males Discharged | Discharged Non-Infectious | Total Females Discharged | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| January | ... | ... | ... | 1 | ... | 1 | 1 | ... | ... | ... | 1 | ... | ... | 1 | 99 | 79 | 178 |
| February | 1 | ... | 1 | 1 | ... | 1 | 1 | ... | ... | ... | 1 | ... | ... | 1 | 99 | 80 | 179 |
| March | ... | ... | 3 | 1 | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | 102 | 81 | 183 |
| April | 1 | 2 | 3 | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... | ... | 105 | 82 | 187 |
| May | 1 | 2 | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 108 | 82 | 190 |
| June | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 109 | 84 | 193 |
| July | ... | 2 | 2 | ... | 2 | 2 | ... | ... | ... | ... | ... | ... | ... | 2 | 111 | 84 | 195 |
| August | ... | 1 | 1 | 1 | ... | 1 | ... | 1 | ... | ... | 1 | ... | ... | 2 | 111 | 84 | 195 |
| September | ... | ... | ... | ... | ... | ... | 9 | ... | ... | ... | 9 | ... | ... | 13 | 102 | 80 | 182 |
| October | ... | 2 | 2 | 1 | 1 | 2 | 1 | 1 | ... | ... | 1 | ... | ... | 6 | 103 | 77 | 180 |
| November | ... | 1 | 1 | ... | 1 | 1 | 3 | 3 | ... | ... | 3 | 1 | ... | 7 | 101 | 74 | 175 |
| December | ... | ... | ... | 1 | 1 | 2 | 4 | ... | 1 | ... | 5 | ... | ... | 7 | 96 | 74 | 170 |
| Total | 4 | 13 | 17 | 6 | 8 | 14 | 31 | 19 | 2 | ... | 21 | ... | ... | 39 | ... | ... | ... |

Analysis of Admissions and Discharges During 1967

| | | | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Inmates as at 31st December, 1966 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 178 |
| Admissions for period ended 31st December, 1967 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 31 |
| Discharged for period ended 31st December, 1967 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 36 |
| Deaths for period ended 31st December, 1967 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 3 |
| Ab-sconded for period ended 31st December, 1967 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Total Remaining at Leprosarium 31st December 1967 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | 170 |

Appendix XVII

Incidence and Mortality of Notifiable Diseases

| Diseases Notifiable | | | 1964 | | 1965 | | 1966 | | 1967 | |
|-------------------------|------|------|-------------------------|--------|-------------------------|--------|-------------------------|--------|-------------------------|--------|
| | | | Cases Diag- nosed | Deaths | Cases Diag- nosed | Deaths | Cases Diag- nosed | Deaths | Cases Diag- nosed | Deaths |
| Acute Rheumatism | .... | .... | 8 | .... | 6 | 1 (A) | .... | .... | .... | 1 (A) |
| Amoebiasis | .... | .... | 1 | .... | 3 | 1 | .... | .... | .... | .... |
| Ankylostomiasis | .... | .... | 37 | .... | 2 | .... | .... | .... | 17 | .... |
| Breast Abscess | .... | .... | 4 | .... | 5 | .... | .... | .... | .... | .... |
| Brucellosis | .... | .... | 4 | 1 | 3 | .... | 3 | .... | 2 | .... |
| Chorea | .... | .... | .... | .... | 1 | .... | .... | .... | .... | .... |
| Dengue Fever | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Diphtheria | .... | .... | 3 | .... | 2 | .... | 2 | .... | .... | .... |
| Dysentery (Amoebic) | .... | .... | 2 | .... | .... | .... | .... | .... | 2 | .... |
| Dysentery (Bacillary) | .... | .... | 135 | 6 | 229 | 1 | 108 | 1 | 186 | 3 |
| Erythema Nodosum | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |
| Hydatid | .... | .... | 3 | 1 | 2 | .... | 1 | 1 | 1 | .... |
| Infantile Diarrhoea | .... | .... | 44 | 23 (B) | 13 | 24 (B) | .... | 23 (B) | .... | 34 (B) |
| Infective Hepatitis | .... | .... | 100 | 3 | 83 | 3 | 28 | 3 | 190 | 5 |
| Lead Poisoning | .... | .... | .... | .... | .... | .... | 1 | .... | .... | .... |
| Leprosy | .... | .... | 11 | .... | 18 | .... | 13 | 1 | 12 | .... |
| Leptospirosis | .... | .... | 4 | .... | 14 | .... | 7 | .... | 2 | .... |
| Malaria | .... | .... | 5 | .... | 2 | .... | 3 | .... | 4 | .... |
| Meningococcal Infection | .... | .... | 1 | 1 | 2 | 4 | 6 | 4 | 4 | 2 |
| Paratyphoid | .... | .... | .... | .... | 3 | .... | 1 | .... | 1 | .... |
| Poliomyelitis | .... | .... | .... | .... | .... | 1 (C) | .... | .... | .... | .... |
| Pleural Effusion | .... | .... | 1 | .... | 1 | .... | .... | .... | 3 | .... |
| Puerperal Fever | .... | .... | 3 | .... | 1 | .... | 6 | .... | 2 | .... |
| Purulent Ophthalmia | .... | .... | 14 | .... | 1 | .... | .... | .... | .... | .... |
| Rubella | .... | .... | 190 | .... | 587 | .... | .... | .... | .... | .... |
| Salmonella Infection | .... | .... | 61 | 1 | 69 | .... | 71 | .... | 154 | .... |
| Scarlet Fever | .... | .... | 61 | .... | 41 | .... | 59 | .... | 29 | .... |
| Tetanus | .... | .... | 8 | 5 | 1 | 1 | 2 | .... | .... | .... |
| Trachoma | .... | .... | 147 | .... | 77 | .... | .... | .... | .... | .... |
| P.T.B. | .... | .... | 176 | 20 | 152 | 14 | 134 | 19 | 134 | 10 |
| Other T.B. | .... | .... | 31 | .... | 25 | .... | 40 | .... | 36 | .... |
| Typhoid Fever | .... | .... | .... | .... | 2 | .... | 2 | .... | 1 | .... |
| Typhus Fever | .... | .... | .... | .... | .... | .... | .... | .... | 2 | .... |

For 1966 and earlier years, excludes full-blood Aborigines. In 1967, Aborigines are included.

- (A) Rheumatic Fever.
(B) Gastro-Enteritis and Colitis (except ulceration) under two years and diarrhoea of the new born.
(C) Late effects of acute poliomyelitis.

Appendix XVIII

Stillbirth and Infant Mortality Rates W.A.

| Year | Total Births including Stillbirths | Stillbirth Rates | Mortality Rates | | | Total mortality rates under one year | Total mortality rates under one year including Stillbirths |
|------|--|---------------------|-------------------|--------------------|---|--|---|
| | | | Under one week | Under one month | Over one month and under one year | | |
| 1946 | | 12,398 | 23.1 | 17.1 | 20.6 | 9.6 | 30.3 |
| 1947 | | 13,178 | 23.2 | 16.9 | 19.4 | 1.2 | 10.2 |
| 1948 | | 13,197 | 20.5 | 16.9 | 18.7 | 8.4 | 25.0 |
| 1949 | | 13,779 | 19.4 | 16.2 | 19.0 | 6.8 | 25.9 |
| 1950 | | 14,468 | 16.6 | 16.2 | 18.0 | 8.6 | 26.7 |
| 1951 | | 15,091 | 19.7 | 16.2 | 19.7 | 8.5 | 28.2 |
| 1952 | | 15,697 | 18.1 | 15.5 | 17.7 | 6.9 | 24.5 |
| 1953 | | 16,130 | 16.6 | 13.4 | 16.2 | 7.3 | 23.4 |
| 1954 | | 16,198 | 16.7 | 14.2 | 15.8 | 6.4 | 22.2 |
| 1955 | | 16,862 | 14.2 | 13.3 | 15.8 | 6.3 | 22.1 |
| 1956 | | 17,142 | 13.2 | 13.0 | 15.7 | 6.7 | 22.4 |
| 1957 | | 17,172 | 14.4 | 13.6 | 14.9 | 5.9 | 20.8 |
| 1958 | | 16,956 | 13.3 | 12.8 | 14.2 | 7.1 | 21.2 |
| 1959 | | 17,336 | 13.0 | 12.3 | 13.6 | 6.3 | 19.9 |
| 1960 | | 17,152 | 13.2 | 13.9 | 15.7 | 5.7 | 21.3 |
| 1961 | | 17,318 | 13.9 | 10.3 | 12.6 | 6.8 | 19.4 |
| 1962 | | 17,267 | 11.8 | 12.6 | 14.3 | 7.7 | 22.0 |
| 1963 | | 17,468 | 10.2 | 12.3 | 14.7 | 5.5 | 20.2 |
| 1964 | | 16,855 | 10.1 | 11.8 | 12.9 | 6.6 | 19.5 |
| 1965 | | 16,367 | 11.1 | 12.8 | 15.0 | 6.5 | 21.4 |
| 1966 | | 17,175 | 9.8 | 12.1 | 14.1 | 5.0 | 19.2 |
| 1967 | | 18,211 | 10.3 | 11.4 | 13.0 | 4.3 | 17.2 |

(a) For 1966 and earlier years, excludes Full-blood Aborigines. In 1967, Aborigines are included.
In above table all rates are calculated in deaths per 1,000 of total births, including stillbirths.

INFANT MORTALITY

| Year | | | | Births | Infant Mortality per 1,000 Live Births |
|------|------|------|------|--------|---|
| 1946 | .... | .... | .... | 12,105 | 36.1 |
| 1947 | .... | .... | .... | 12,874 | 30.9 |
| 1948 | .... | .... | .... | 12,931 | 25.6 |
| 1949 | .... | .... | .... | 13,511 | 26.4 |
| 1950 | .... | .... | .... | 14,228 | 27.1 |
| 1951 | .... | .... | .... | 14,794 | 28.7 |
| 1952 | .... | .... | .... | 15,413 | 24.9 |
| 1953 | .... | .... | .... | 15,862 | 23.8 |
| 1954 | .... | .... | .... | 15,928 | 22.5 |
| 1955 | .... | .... | .... | 16,623 | 22.4 |
| 1956 | .... | .... | .... | 16,916 | 22.7 |
| 1957 | .... | .... | .... | 16,924 | 21.1 |
| 1958 | .... | .... | .... | 16,731 | 21.5 |
| 1959 | .... | .... | .... | 17,111 | 20.2 |
| 1960 | .... | .... | .... | 16,926 | 21.6 |
| 1961 | .... | .... | .... | 17,078 | 19.7 |
| 1962 | .... | .... | .... | 17,064 | 22.3 |
| 1963 | .... | .... | .... | 17,290 | 20.4 |
| 1964 | .... | .... | .... | 16,685 | 19.7 |
| 1965 | .... | .... | .... | 16,186 | 21.7 |
| 1966 | .... | .... | .... | 17,007 | 19.3 |
| 1967 | .... | .... | .... | 18,023 | 17.4 |

(a) For 1966 and earlier years, excludes Full-blood Aborigines. In 1967 Aborigines are included.

STILLBIRTH AND INFANT MORTALITY RATES (a)

| Area of Registration | Total Births Including Stillbirths | Stillbirth Rates | Infant Mortality Rates | | | | Total Mortality Infant Deaths and Stillbirths |
|-------------------------|------------------------------------|------------------|------------------------|-----------------|-----------------------------------|----------------------|---|
| | | | Under one week | Under one month | Over One month and under one year | Total under one year | |
| 1966 | 60,856 | 10·98 | 9·73 | 11·12 | 6·36 | 17·48 | 28·46 |
| 1967— | | | | | | | |
| New Zealand | 61,904 | 11·87 | N/A | 11·05 | 6·75 | 17·80 | 29·67 |
| 1967— | | | | | | | |
| Western Australia | 18,211 | 10·30 | 11·42 | 12·96 | 4·28 | 17·24 | 27·57 |
| New South Wales | 79,704 | 10·83 | 11·91 | 13·27 | 4·94 | 18·22 | 29·04 |
| Victoria | 66,282 | 12·02 | 11·22 | 12·49 | 4·12 | 16·61 | 28·64 |
| Queensland | 35,064 | 10·61 | 12·69 | 14·52 | 4·82 | 19·34 | 29·95 |
| Tasmania | 7,630 | 10·88 | 10·35 | 11·27 | 5·77 | 17·04 | 27·92 |
| South Australia | 20,597 | 10·24 | 10·29 | 11·75 | 5·05 | 16·80 | 27·04 |

(a) For year 1966, excludes Full-blood Aborigines. In 1967, Aborigines are included.
N/A denotes “ not yet available ”.

Comparison of Infant Mortality and General Death Rate

| Place | Infant Mortality Rate | | | | General Death Rate | | | |
|-----------------------------|-----------------------|------|------|------|--------------------|------|------|------|
| | 1964 | 1965 | 1966 | 1967 | 1964 | 1965 | 1966 | 1967 |
| New Zealand (a) | 19·1 | 19·5 | 17·7 | 18·0 | 8·83 | 8·72 | 8·86 | 8·43 |
| Western Australia (b) | 19·7 | 21·7 | 19·3 | 17·4 | 8·06 | 7·70 | 8·09 | 7·73 |
| New South Wales (b) | 20·3 | 19·1 | 19·2 | 18·4 | 9·61 | 9·33 | 9·57 | 9·19 |
| Victoria (b) | 16·9 | 17·5 | 17·4 | 16·8 | 8·87 | 8·86 | 8·90 | 8·66 |
| Queensland (b) | 19·2 | 17·8 | 17·7 | 19·5 | 9·07 | 8·64 | 8·93 | 8·65 |
| South Australia (b) | 19·0 | 18·4 | 17·5 | 17·0 | 8·61 | 8·26 | 8·54 | 8·16 |
| Tasmania (b) | 20·1 | 16·6 | 14·6 | 17·2 | 8·71 | 8·27 | 8·50 | 8·57 |

(a) Includes Maoris
(b) For 1966 and earlier years excludes Full-blood Aborigines. In 1967 Aborigines are included.

Maternal Mortality Rates per Thousand Live Births

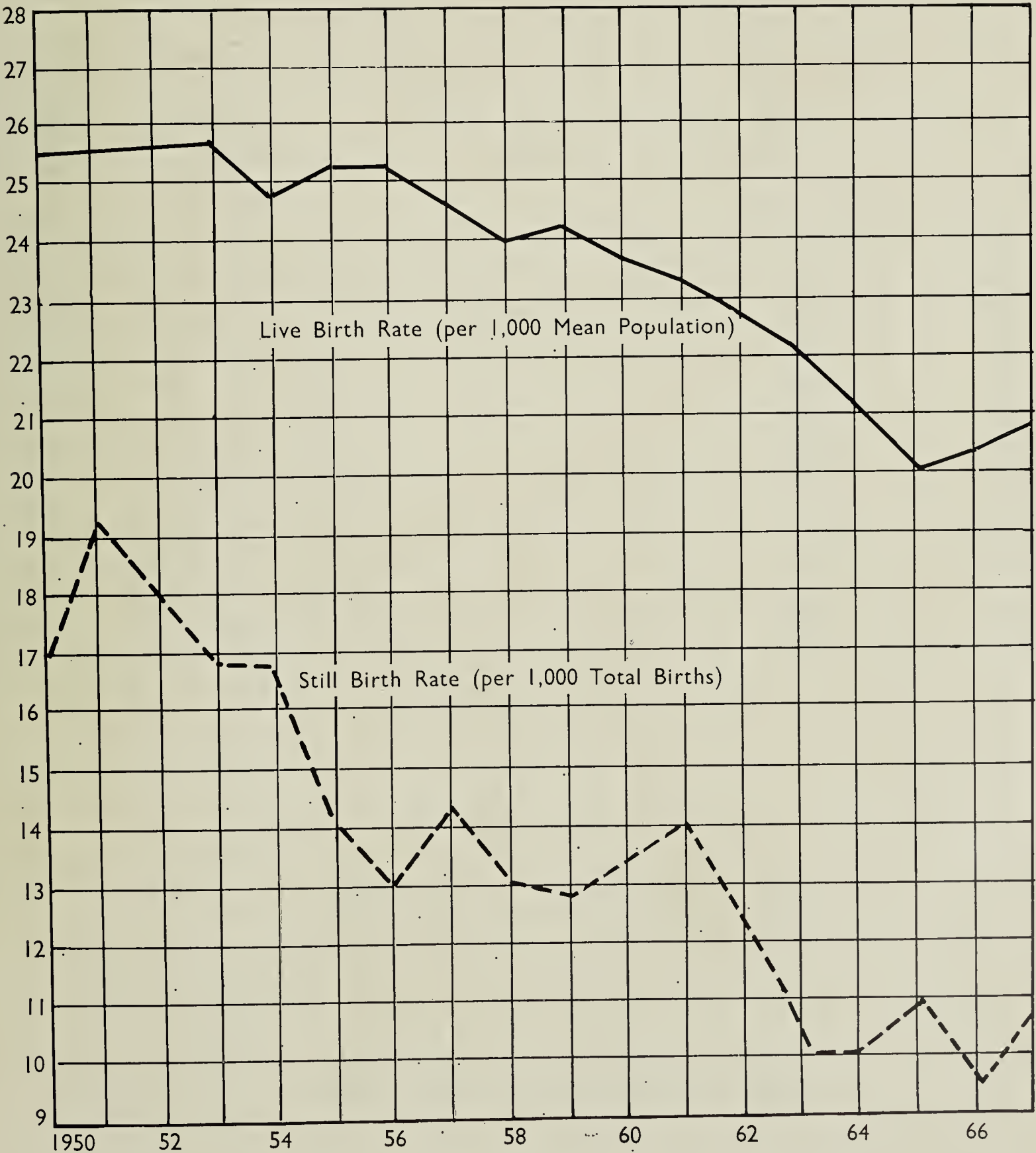
| Place | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 |
|-----------------------------|------|------|------|------|------|------|------|------|
| Western Australia (a) | 0·47 | 0·41 | 0·29 | 0·23 | 0·36 | 0·19 | 0·41 | 0·11 |
| New Zealand (b) | 0·34 | 0·33 | 0·17 | 0·37 | 0·26 | 0·17 | 0·32 | (c) |
| New South Wales (a) | 0·68 | 0·50 | 0·34 | 0·32 | 0·34 | 0·32 | 0·28 | 0·24 |
| Victoria (a) | 0·25 | 0·32 | 0·18 | 0·21 | 0·31 | 0·36 | 0·25 | 0·20 |
| Queensland (a) | 0·68 | 0·76 | 0·64 | 0·25 | 0·29 | 0·30 | 0·40 | 0·26 |
| Tasmania (a) | 0·45 | 0·33 | 0·33 | 0·23 | 0·24 | 0·40 | 0·27 | 0·27 |
| South Australia (a) | 0·62 | 0·27 | 0·61 | 0·28 | 0·33 | 0·34 | 0·20 | 0·20 |

(a) For 1966 and earlier years excludes Full-blood Aborigines. In 1967 Aborigines are included.
(b) Non-Maori
(c) Not yet available

Appendix XIX
Western Australia – Stillbirth and Birth Rates

| Year | | | | | Live Births | | | Stillbirths | |
|------|------|------|------|------|-----------------|--------|--------------------------------|-------------|-----------------------------|
| | | | | | Mean Population | Number | Rate per 1,000 Mean Population | Number | Rate per 1,000 Total Births |
| 1950 | .... | .... | .... | .... | 557,878 | 14,228 | 25.50 | 240 | 16.59 |
| 1951 | .... | .... | .... | .... | 580,317 | 14,794 | 25.49 | 297 | 19.68 |
| 1952 | .... | .... | .... | .... | 600,615 | 15,413 | 25.66 | 284 | 18.09 |
| 1953 | .... | .... | .... | .... | 621,034 | 15,862 | 25.54 | 268 | 16.62 |
| 1954 | .... | .... | .... | .... | 639,963 | 15,928 | 24.89 | 270 | 16.67 |
| 1955 | .... | .... | .... | .... | 657,323 | 16,623 | 25.29 | 239 | 14.17 |
| 1956 | .... | .... | .... | .... | 674,459 | 16,916 | 25.08 | 226 | 13.18 |
| 1957 | .... | .... | .... | .... | 687,448 | 16,924 | 24.62 | 248 | 14.44 |
| 1958 | .... | .... | .... | .... | 699,915 | 16,731 | 23.90 | 225 | 13.27 |
| 1959 | .... | .... | .... | .... | 711,737 | 17,111 | 24.04 | 225 | 12.98 |
| 1960 | .... | .... | .... | .... | 722,900 | 16,926 | 23.41 | 226 | 13.18 |
| 1961 | .... | .... | .... | .... | 737,386 | 17,078 | 23.16 | 240 | 13.86 |
| 1962 | .... | .... | .... | .... | 755,259 | 17,064 | 22.59 | 203 | 11.76 |
| 1963 | .... | .... | .... | .... | 773,235 | 17,290 | 22.23 | 178 | 10.19 |
| 1964 | .... | .... | .... | .... | 790,224 | 16,685 | 20.93 | 170 | 10.09 |
| 1965 | .... | .... | .... | .... | 806,189 | 16,186 | 19.85 | 181 | 11.06 |
| 1966 | .... | .... | .... | .... | 836,345 | 17,007 | 20.31 | 168 | 9.78 |
| 1967 | .... | .... | .... | .... | 876,997 | 18,023 | 20.55 | 188 | 10.32 |

For 1966 and earlier years excludes Full-blood Aborigines. In 1967 Aborigines are included.



Appendix XX

MATERNAL MORTALITY

| Period | | | | | | | Average Live Births | Average Maternal Deaths | Average Rate |
|-----------|------|------|------|------|------|------|---------------------|-------------------------|--------------|
| 1901-1905 | .... | .... | .... | .... | .... | .... | 6,681 | 28·0 | 4·19 |
| 1906-1910 | .... | .... | .... | .... | .... | .... | 7,691 | 43·4 | 5·64 |
| 1911-1915 | .... | .... | .... | .... | .... | .... | 8,844 | 39·4 | 4·46 |
| 1916-1920 | .... | .... | .... | .... | .... | .... | 7,726 | 41·4 | 5·36 |
| 1921-1925 | .... | .... | .... | .... | .... | .... | 8,056 | 34·2 | 4·25 |
| 1926-1930 | .... | .... | .... | .... | .... | .... | 8,748 | 46·8 | 5·35 |
| 1931-1935 | .... | .... | .... | .... | .... | .... | 8,062 | 35·4 | 4·39 |
| 1936-1940 | .... | .... | .... | .... | .... | .... | 8,877 | 32·4 | 3·65 |
| 1941-1945 | .... | .... | .... | .... | .... | .... | 10,408 | 24·4 | 2·34 |
| 1946-1950 | .... | .... | .... | .... | .... | .... | 13,130 | 21·4 | 1·63 |
| 1951-1955 | .... | .... | .... | .... | .... | .... | 15,724 | 13·8 | 0·88 |
| 1956-1960 | .... | .... | .... | .... | .... | .... | 16,922 | 8·2 | 0·48 |
| 1961-1965 | .... | .... | .... | .... | .... | .... | 16,861 | 5·0 | 0·30 |

| Year | | | Live Births | Deaths From | | | | | | | | | |
|------|------|------|-------------|-----------------------|------|---------------------------|------|----------|------|---|------|---|------|
| | | | | Puerperal Septicaemia | | Other Puerperal Infection | | Abortion | | All other Complications of Pregnancy and of the Puerperal State | | All Compli-cations of Pregnancy and the Puerperal State | |
| | | | No. | Rate | No. | Rate | No. | Rate | No. | Rate | No. | Rate | |
| 1946 | .... | .... | 12,105 | .... | 3 | 0·25 | 5 | 0·41 | 18 | 1·49 | 26 | 2·15 | |
| 1947 | | | 12,874 | 1 | 0·08 | 1 | 0·08 | 8 | 0·62 | 22 | 1·71 | 32 | 2·49 |
| 1948 | | | 12,981 | 2 | 0·15 | 4 | 0·31 | 1 | 0·08 | 13 | 1·00 | 20 | 1·55 |
| 1949 | .... | .... | 13,511 | .... | 2 | 0·15 | 3 | 0·22 | 11 | 0·81 | 16 | 1·18 | |
| 1950 | .... | .... | 14,228 | .... | 2 | 0·14 | 1 | 0·07 | 10 | 0·70 | 13 | 0·91 | |
| 1951 | .... | .... | 14,794 | .... | 2 | 0·14 | 3 | 0·02 | 11 | 0·74 | 16 | 1·08 | |
| 1952 | .... | .... | 15,413 | .... | 3 | 0·19 | 3 | 0·19 | 12 | 0·78 | 18 | 1·17 | |
| 1953 | .... | .... | 15,862 | .... | .... | .... | 1 | 0·06 | 8 | 0·50 | 9 | 1·57 | |
| 1954 | .... | .... | 15,928 | .... | .... | .... | 5 | 0·31 | 7 | 0·44 | 12 | 0·75 | |
| 1955 | .... | .... | 16,623 | .... | .... | .... | 1 | 0·06 | 13 | 0·78 | 14 | 0·84 | |
| 1956 | .... | .... | 16,916 | .... | .... | .... | 2 | 0·12 | 7 | 0·41 | 9 | 0·53 | |
| 1957 | .... | .... | 16,924 | .... | .... | .... | 3 | 0·18 | 8 | 0·47 | 11 | 0·65 | |
| 1958 | .... | .... | 16,731 | .... | .... | .... | 1 | 0·06 | 7 | 0·42 | 8 | 0·48 | |
| 1959 | .... | .... | 17,111 | .... | .... | .... | 1 | 0·06 | 4 | 0·23 | 5 | 0·29 | |
| 1960 | .... | .... | 16,926 | 1 | 0·06 | .... | 3 | 0·18 | 4 | 0·24 | 8 | 0·47 | |
| 1961 | .... | .... | 17,078 | .... | .... | .... | 2 | 0·12 | 5 | 0·29 | 7 | 0·41 | |
| 1962 | .... | .... | 17,064 | .... | .... | .... | 1 | 0·06 | 4 | 0·23 | 5 | 0·29 | |
| 1963 | .... | .... | 17,290 | .... | .... | .... | 1 | 0·06 | 3 | 0·17 | 4 | 0·23 | |
| 1964 | .... | .... | 16,685 | .... | .... | .... | 3 | 0·18 | 3 | 0·18 | 6 | 0·36 | |
| 1965 | .... | .... | 16,186 | .... | .... | .... | 1 | 0·06 | 2 | 0·12 | 3 | 0·19 | |
| 1966 | .... | .... | 17,007 | .... | .... | .... | 1 | 0·06 | 6 | 0·35 | 7 | 0·41 | |
| 1967 | .... | .... | 18,023 | .... | .... | .... | .... | .... | 2 | 0·11 | 2 | 0·11 | |

(All Rates per thousand live births)

Appendix XXI

Meat Inspection for the Year Ended 31st December, 1967

*Abnormalities

| Type and Number of Animals Slaughtered | Carcases Condemned For— | | | | | | Part Carcases Condemned For— | | | | | | Organs Condemned For— | | | | | | | | | |
|--|-------------------------|--------------------|-------------------------|-----------------------------------|------------------|--|------------------------------|-----------------------------|--|--------------------|-----------------------------------|-------------------|-----------------------|-----------------------------|--|--------------------|--------------------------------------|---------------------------|-------------------|-----------------------------|-----------------------------------|---------|
| | Tuber- enlosis | Actino- mycosis | Piro- plas- mosis | Caseous Lymph Aden- itis | Para- typhoid | Trau- matic and Septic Condi- tions | Pleuro- Pneu- monia | Other Abnor- malities | Total Car- cases Con- demned | Actino- mycosis | Caseous Lymph Aden- itis | Tuber- enlosis | Arth- ritis | Other Abnor- malities | Total Part Car- cases Con- demned | Actino- mycosis | Echino- coccus Gran- ulosis | Pleuro- Pneu- monia | Tuber- enlosis | Other Abnor- malities | Total Organs Con- demned | |
| Midland— | | | | | | | | | | | | | | | | | | | | | | |
| Cattle | 32 | ... | ... | ... | 1 | 33 | ... | 78 | 144 | ... | ... | 22 | 3 | 305 | 330 | 20 | 360 | ... | 36 | 3,919 | 4,335 | |
| Calves | ... | ... | ... | 29 | ... | 1 | ... | ... | 115 | ... | 63 | ... | 112 | ... | 112 | ... | ... | ... | ... | ... | 107,531 | 107,567 |
| Sheep | 14 | ... | ... | 5 | 30 | 86 | ... | ... | 168 | 549 | ... | 131 | 478 | 968 | 2,126 | ... | 4 | ... | ... | ... | 2,244 | 2,248 |
| Pigs | ... | ... | 4 | ... | ... | 115 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Robbs Jetty— | | | | | | | | | | | | | | | | | | | | | | |
| Cattle | 15 | ... | ... | ... | ... | 21 | ... | 8 | 44 | 843 | ... | 9 | 6 | 23 | 881 | 89 | 36 | ... | 4 | 1,303 | 1,432 | |
| Calves | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Sheep | ... | ... | ... | 95 | ... | 847 | ... | 465 | 1,407 | ... | 166 | ... | 245 | 40 | 451 | ... | 47 | ... | ... | 24,267 | 24,314 | |
| Pigs | 2 | ... | ... | ... | 2 | 50 | ... | 11 | 65 | 1 | ... | 47 | 78 | 101 | 227 | ... | 8 | ... | ... | 1,884 | 1,892 | |
| Watsons— | | | | | | | | | | | | | | | | | | | | | | |
| Pigs | 39 | ... | ... | ... | 48 | 6 | ... | ... | 93 | ... | ... | 5 | 975 | 850 | 1,830 | ... | ... | ... | ... | 1,200 | 1,200 | |
| Kalgoorlie— | | | | | | | | | | | | | | | | | | | | | | |
| Cattle | ... | ... | ... | ... | ... | ... | ... | 1 | 1 | ... | ... | ... | ... | ... | ... | 8 | ... | ... | ... | 90 | 98 | |
| Calves | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Sheep | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Pigs | 1 | ... | 18 | ... | ... | ... | ... | ... | 35 | ... | 77 | ... | 52 | 18 | 147 | ... | ... | ... | ... | 1,467 | 1,467 | |
| Country Districts and Metropolitan Markets*— | | | | | | | | | | | | | | | | | | | | | | |
| Cattle | 27 | 1 | ... | ... | ... | 63 | ... | 50 | 141 | 15 | ... | 11 | 10 | 104 | 140 | 158 | 99 | ... | 3 | 602 | 862 | |
| Calves | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Sheep | ... | ... | ... | 73 | ... | 269 | ... | 935 | 1,277 | ... | 375 | ... | 544 | 171 | 1,090 | ... | 1,159 | ... | ... | 16,570 | 17,729 | |
| Pigs | 33 | ... | ... | ... | 40 | 22 | ... | 48 | 143 | ... | ... | 337 | 142 | 71 | 550 | ... | 18 | ... | 19 | 3,734 | 3,771 | |

* Country Districts Included—
Busselton, Collie, Capel, Dardanup, Dornbrook, Esperance, Geraldton, Harvey, Katanning, Mandurah, Man-
jimup, Merredin, Narrogin, Northam, Plantagenet, Upper Blackwood, Wagin, Waroona, York.

| | | | | | | | | | | | | | | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Grand Totals— | | | | | | | | | | | | | | | | | | | | | |
| Cattle | ... | ... | ... | ... | ... | ... | ... | ... | 130,808 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Calves | ... | ... | ... | ... | ... | ... | ... | ... | 8,867 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Sheep | ... | ... | ... | ... | ... | ... | ... | ... | 1,280,077 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Pigs | ... | ... | ... | ... | ... | ... | ... | ... | 207,879 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

Appendix XXII

Revenue and Expenditure for the Year 1967

| <i>Revenue</i> | | | | | | | | | | | | | | \$ | \$ |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|---------|--------------------|
| Laboratory Fees | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 331,981 |
| Branding Fees— | | | | | | | | | | | | | | | |
| Fish | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 3,366 | |
| Meat | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 101,909 | 105,275 |
| Septic Tank Fees | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 45,611 |
| Dental Fees—North-West Clinics | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 29,639 |
| Child Health Contributions etc. | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 17,633 |
| Derby Leprosarium—Maintenance Fees, Commonwealth Benefits etc. | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 106,018 |
| North-West Health Inspector Schemes | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 3,747 |
| Nurses' Registration Board Examination and Registration Fees | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 9,317 |
| Public Buildings Inspection Fees | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 3,615 |
| Private Hospitals' Licences | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 2,346 |
| Poisons Licences | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 3,479 |
| Perth Medical Officers' Fees | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 4,587 |
| Miscellaneous | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 40,577 |
| Tuberculosis— | | | | | | | | | | | | | | | |
| Commonwealth Capital Recoups | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | .... |
| Commonwealth Maintenance Recoups | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 632,168 |
| Other | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 16,823 |
| Administration Charges etc. | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 57,475 |
| | | | | | | | | | | | | | | | <u>\$1,410,291</u> |

| <i>Expenditure</i> | | | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|------|------|---------|--------------------|
| Salaries and Wages | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 1,912,135 |
| Laboratory Services | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 303,494 |
| Child Health Services | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 61,091 |
| Schools Medical Services | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 15,556 |
| Schools Dental Services— | | | | | | | | | | | | | | | |
| Generally | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 30,209 | |
| North-West Clinics | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 32,200 | |
| Subsidy Perth Dental Hospital Mobile Units (including Aero) | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 30,013 | |
| Bursaries | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 10,037 | 102,459 |
| Tuberculosis— | | | | | | | | | | | | | | | |
| Miscellaneous | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 193,360 | |
| Recoup to Sir Charles Gairdner Hospital | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | 419,961 | 613,321 |
| Leprosy | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 180,467 |
| Poliomyelitis | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 27,229 |
| Venereal Diseases | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 12,645 |
| Ophthalmic Survey | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 3,968 |
| Medical and Nutritional Survey of Natives | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 3,422 |
| North-West Health Inspector Schemes | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 6,334 |
| Nurses' Registration Board | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 7,027 |
| Physiotherapy and Speech Therapy Bursaries | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 4,696 |
| Clean Air Act and Poison Committee Fees | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 1,121 |
| Clean Air Act—Equipment | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 1,123 |
| Clean Air Act—Incidentals | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 1,854 |
| Septic Tank Inspection Fees—Refunds | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 18,614 |
| Sanitation of Government Buildings | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 18,920 |
| Printing | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 26,910 |
| Miscellaneous | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |  | 105,379 |
| | | | | | | | | | | | | | | | <u>\$3,427,765</u> |

